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THE

ILLUSTRATED EXHIBITOR

AND

MAGAZINE OF ART:

COLLECTED FROM

THE VARIOUS DEPARTMENTS

OF

PAINTING, SCULPTURE, ARCHITECTURE, HISTORY, BIOGRAPHY,
ART-INDUSTRY, MANUFACTURES, INVENTIONS AND DISCOVERIES, LOCAL AND DOMESTIC SCENES,
ORNAMENTAL WORKS,

ETC. ETC.

VOLUME I.

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THE

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THE LANDING OF THE SAXONS IN BRITAIN.



DRAWN BY J. GILBERT.

Hither came from eastern shores
The Angles and Saxons over the broad sea –
Fierce battle-smiths—and Britain sought;
O'ercame the Welsh, most valiant earls,
And gained the land.

OLD SAXON POEM.

HISTORICAL EVENTS.

THE LANDING OF THE SAXONS IN BRITAIN, A.D. 450.

It is a thousand years and more since the wretched Britons "sent their groans to the thrice-appointed Consul, Aetius," beseeching him to protect them against the fearful inroads of the painted savages of the north. "The sea drives us back upon the swords of the barbarians, and the swords of the barbarians," said they, "drive us into the sea. Come over and help us, ere we perish!" But the Consul had other and more pressing dangers to guard against, and dearer interests to attend to, and the Britons were left to their fate.

In the forests of lower Germany a hardy tribe then dwelt, whose prowess was acknowledged far and wide, and whose barks rode triumphantly over the stormy seas of the north, by the rude waves of which many a mightier navy had been dashed to atoms. This fair-haired, blue-eyed race, had spread the terror of their name along the coast of Gaul, and left homes desolate and mothers weeping on the far-off shores of Spain. Their wild war songs were often heard with fear and trembling over the roar of the storm, and their ships were often seen bearing their warriors to plunder, havoc, and desolation, through the howling tempest. These were the Saxons, and these were the men whom the Britons besought to aid them.

They came with 1,600 men, and landed in A.D. 450 in the Isle of Thanet, under the command of two brothers, Hengist and Horsa, as tradition tells; but it is now generally and more correctly believed that the story of the two brothers is a mere myth, founded on the figure of a horse borne on their standard. They immediately marched against the Picts and Scots, and often was the white-horse flag borne triumphantly through many a bloody field. They demanded land as the reward of their services, and at last took possession of the whole island, and drove the Britons to the extreme west and south-west. New bands of adventurers arriving, they established seven kingdoms, known as the Saxon Heptarchy, which were at length united into one under Egbert. The after history, until the invasion of the Danes, was one of peaceful progress. With their severe but successful struggles against the latter all are acquainted.

Attracted by the beauty and fertility of our country, these northern tribes came—as the engraving shows—in their capacious, but not unwieldly war-ships, armed with weapons of steel, while their champions wielded with fatal energy their ponderous and iron-studded clubs. Their descent on our shores, commenced in adventure and continued in conquest, originated and established the Anglo-Saxon race, which, rising from the shores of Kent, spread itself rapidly over the length and breadth of the land. The Normans softened the ruggedness of the people, and gave a polish to their surface; and we are now the result of this fusion, and that during successive periods,—just as the British Government is a mixture of elements and a growth of ages.

The Anglo-Saxon race, nursed within the boundaries of a narrow island, has not only been receptive, but, to an extraordinary extent, diffusive. Every wave that has touched its coasts has wafted onwards an impulsive influence that has been felt throughout the habitable globe. As the seeds of Anglo-Saxon vitality have been committed to them, they have sprung up even on the far-off sands and rocks. The pitching of a tent has been the parent of a town, and the sea-coast station has extended itself into a continental metropolis.

Many pages of history are filled with the triumphs of the Anglo-Saxons. They have penetrated the vast forests of America, and peopled with constantly increasing millions the western hemisphere. They have passed the great wall of China, and to them has been surrendered the immemorial sceptre of the East. Their colonies are boundless regions, the seats of incipient empires of gigantic strength, where ten times the population of Britain may exist in contentment and affluence. Without pretending to the name of a military people, they have acquired a dominion greater than that of Alexander or Aurelian. The pen of the historian, in future ages, will have to trace their subsequent progress and destiny.

It must for ever form a subject for triumph and self-gratulation, that a little island like our own, peopled by a handful of hardy men, the descendants of a few warriors from the swamps of the north, should not only have built up a great constitution at home, but have made their name famous all the world over in "arts, in arms, in story." The people of England must not attempt to claim descent from the horde of adventurers who fought beside William the Bastard on the downs of Hastings, and who, forgetful of their antecedents, lorded it ever since in the heritage of the conquered people. It is only the great lords and "county families" of our day, who derive their origin from this impure source. The men who fought beside Harold, and who ceased to fight only when fighting was useless, but who neither betrayed nor repented; the faithful few who held out in the marshes of Ely, and wept over William Longbeard in the streets of London; the serfs, the yeomen, and the sellers of broadcloth, who sung the praises of Robin Hood and Little John, and loved to hear of the exploits of outlaws bold in the "merry green wood;" the irritated peasants who rose under Wat Tyler and Jack Cade, and marched upon the capital, shouting "No haughty lords! no hollow-hearted bishops!" and singing,

> "When Adam delved, and Eve span,
> Who was then the gentleman?"—

these were the ancestors of the Englishmen who have peopled the forests of the far west; who discovered the new world of Polynesia, and have colonised, peopled, and subdued it; who have conquered the wide plains of the East, and gathered in all the riches of the El Dorado of the ancients; who are found everywhere over the globe, working, reading, writing, travelling, speaking; who fought at Cressy, at Agincourt, at Trafalgar, and Waterloo.

Ours is a great mission, and we should be proud of it, and careful how we fulfil it. It is not like that of the Romans, to conquer only—"parcere subjectis, et debellare superbos." It is not to rule only, but to civilise, to enlighten, to raise up the people dependent upon us to our own level. Was there ever such a field for a work so glorious? In Asia our generals reign over 93,346,842 men, whose past history is the romance of greatness, but whose civilisation is stationary, and whose morality is degrading. To these it is our duty to teach the lessons of Christianity, progress, and order; to enable them, by the aid of European science, to take advantage of the almost inexhaustible resources of their country, and attach them to our Government by the ties of love and interest rather than the stern persuasion of the sword; to instil into their minds a correct estimate of the value of truth and peace by the force of our own example.

In Australia we have a territory as large as the whole of Europe, possessing a fertile soil, a fine climate, and an inexhaustible supply of mineral wealth. Here we are laying the foundation of an empire which will in all probability form the Britain of the future, when one of its roving tourists, "sitting on a broken arch of London-bridge, shall sketch the ruins of St. Paul's." The stability, security, glory, and usefulness of this scion of our race will depend, in a great measure, upon how we foster and educate its youth. By inculcating, as far as lies in our power, habits of order, obedience to law, self-reliance, and self-government, we perpetuate our name and memory to all time to come. But by cramping its energies, corrupting its morals, keeping it in a state of etiolation or prolonged childhood, we may sow the seeds of ruin and misfortune.

In Africa a territory is opened up to us which has hitherto defied the efforts of the white man to penetrate it. It will be a glorious era in the history of Britain when the children of Ham shall sit down in peace and civilisation, and declare that to her they owe their freedom, their progress, and elevation. Let us take care that no false pride, no hankering after bloody conquest, defer "a consummation so devoutly to be wished." Let us show

onrselves rather the dauntless apostles of the old Gospel, bearing beneath its wings a civilisation which has grown larger and more enlightened through the lapse of a thousand years.

When we then reflect upon what our race has done—"the battles, sieges, fortunes, it has passed"—and when we look forward with unbroken hope to all that it has yet to achieve—when we call to mind the long roll of great men whose mighty voices, sounding through the portals of the tomb, and the mist of years, "still seem to bid England be of good cheer, and bid defiance to her enemies"—who can fail to recognise the vast and overwhelming importance of the event known as the LANDING OF THE SAXONS?

ARCHITECTURE.

THE GRAND CHATEAU OF VERSAILLES.

THE very mention of Versailles calls up a thousand reminiscences of the reign of the Grand Monarque—of gay ladies, talented and witty, bewitching in their charms, and pretty in their letter-writing; of gentlemen who spent their days, and often their nights, in boudoirs, and employed all their leisure hours in the invention of *bon-mots* and quaint compliments, to win the favour of their mistresses; of *bals*, *soupers*, and gallantry and intrigues. The sun and centre of this system of lively folly was Louis XIV. himself—he who comprised the whole state in his single person. And undoubtedly he was superior to all around him. His genius as a ruler and statesman in some measure redeemed the follies of his private life. He made France the most powerful kingdom in Europe, and her court the model of all others in dress, in manner, and in language. But he, too, was the first who successfully endeavoured to banish all serious thought, all earnestness of purpose, from the French soil; and lest his courtiers should trouble their heads about state affairs, he made their lives one long fête. But it was befitting that so joyous a company should have more splendid halls to revel in than the mansions of the old French kings. Louis therefore determined to erect a palace worthy of the greatness that crowned him, and of the *galants* and *jollies dames* who danced minuets with stately paces through the night, and rode briskly to the chase in the morning.

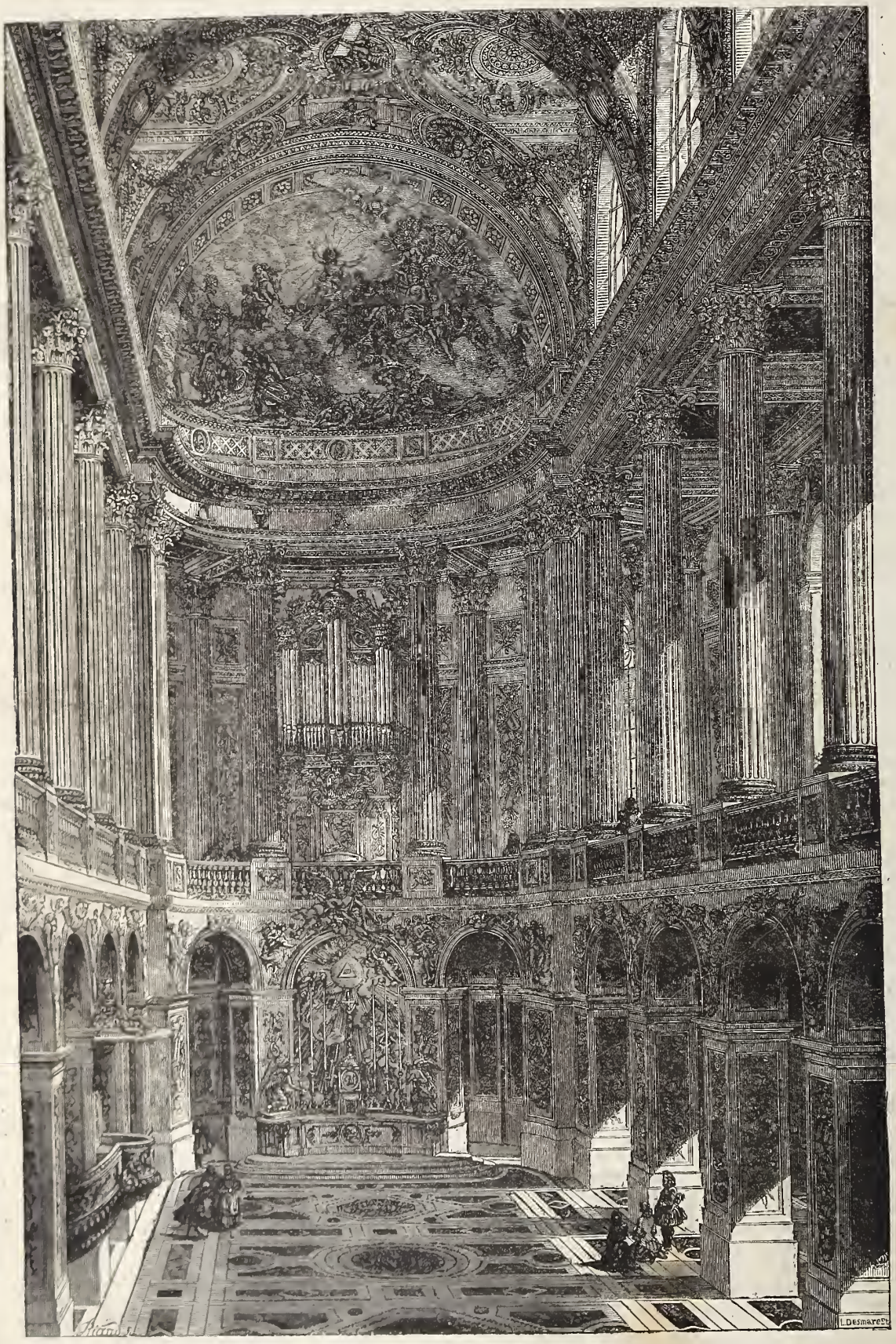
The desire which Louis felt to build the new palace upon the site of an old hunting-lodge erected by his father, in some measure marred the symmetry of his design. Not only was the situation in many respects unsuitable, but in the attempt to adapt the new building to the old one, the vestibules were badly placed, and the staircases, except the marble one, do not by any means harmonise with the richness and vast extent of the edifice. Outwardly, too, the chateau is wanting in effect. There is not the loftiness nor elevation which is always necessary to impress the mind with the idea of grandeur and magnificence. Nevertheless, on the side facing the town, the disposition of the three courts, each gradually diminishing in size, produces a very agreeable perspective. The third, which is called the Marble Court, seems a sort of *sanctum*, around which are grouped the private apartments of the sovereign. The great *Galerie des Glaces*, and the Halls of Peace and War, form the two sides of the building adjoining the garden. The gallery is now divested of all furniture, and forms a vast public promenade. In days of yore, the antique furniture, and the curiously-wrought ornaments of gold and silver, and the immense number of valuable models of every kind with which it was profusely ornamented, formed the delight of every eye that beheld them. The twenty-seven paintings which adorn the ceiling are by Lebrun, and are all scenes in the life of Louis XIV. The apartments of the king and queen are to the right and left of the gallery. The decoration of these rooms is in a style of unequalled splendour. The rarest marble, gold, and bronze, meet us at every point. The paintings were all executed by Coypel, Audran, Delafosse, Lemoine, Philippe de Champaigne, Jouvenet, &c. They contain also a large collection of the works of the old masters—of Raphael, Peter of Cortona, Paul Veronese, Guido, &c. One cabinet is specially appropriated to ancient relics in bronze, precious ornaments, &c. There is a magnificent collection of medals; and amongst the cameos that of the apotheosis of Augustus, at present deposited in the Bibliothèque National. All these are now open to the inspection of the public.

The chapel, which is badly situated in relation to the rest of the building, is near the royal apartments. Its general arrangement is made upon the same principle as the chateau itself—that is, the lower story forms a pedestal for a magnificent colonnade, supporting an upper gallery on a level with the private apartments of the sovereign. The ceiling is divided into three compartments, on each of which are paintings by Jouvenet, Coypel, and Delafosse. The *toute ensemble* of the building is, however, imposing beyond measure; and of all the religious edifices of the seventeenth century it is, perhaps, the one in which the elements of ancient architecture have most successfully contributed to the production of *effect*, in the best and most comprehensive sense of the word. The erection of the chapel was commenced in 1699, and was finished in 1710, only five years before the death of Louis XIV.

It must form a subject of regret that the style peculiar to the old French chateaux—pavilions surmounted by elevated roofs—has not been preserved in Versailles. In the latter, the continuity of horizontal straight lines, extending from one extremity to the other of the façade overlooking the garden, produces an appearance which fatigues the eye by its uniformity. If it were not for the projection of the central or principal building over the wings, there would be nothing to indicate the quarter appropriated to the private apartments of the royal family.

Although the decorations of the interior are marked rather by great richness than chasteness and purity of design, it must be confessed that the various artists who were employed in this great work have infused into every part of it wonderful harmony and unity of aim and execution. The whole building is a fair emblem of the power and the character of the French nation in its best days; but in every room, in every painting, almost in the articles of furniture themselves, we find some memorial of the master mind at whose bidding it rose from the ground. But it is in the gardens and orangery that art displays one of its greatest triumphs. An arid, barren soil, without water or any other natural advantage, has been converted into a paradise worthy of fairyland. Whichever way we turn, all is marvellous, all is magnificent beyond measure. Imagination can scarcely conjure up a greater variety of the picturesque and beautiful than meets the eye in every corner of the park. The numberless marble statues that people the shady groves, the vases, the fountains, the groups in bronze, the water playing in a thousand different devices, form a scene of unequalled splendour, and inspire the spectator with a feeling of enchantment. The palace overlooks the park, and crowns the terraces which ascend on every side. The orangery is in the centre of all, on an elevation, which is reached by two flights of steps erected upon a gigantic scale. The total expense of the erection and decoration of Versailles was 169,148,319,180 francs.

Jules Hardouin Mansart, who took so prominent a part in the execution of the great works set on foot in the reign of Louis XIV., and exercised so great an influence over the French architecture of the seventeenth century, was born in 1645. His father was "cabinet painter" to the King, and his mother was the sister of Francois Mansart, another great architect. His first work was the Chateau of Clagny, which Louis XIV. caused to be erected near Versailles for Madame de Montespan, one of his many *cheres amies*. Mansart was then only thirty-one years old, but he was already celebrated. He was employed in the erection of the stables at Versailles, which stand with so imposing an appearance at each side of the great avenue leading to the chateau. But the chateau itself was his great work. When pointing out its defects, however, we must not forget the man



ARCHITECTURE OF THE SEVENTEENTH CENTURY.—INTERIOR OF THE CHAPEL OF VERSAILLES.



THE GALLERY DES GLACES, IN THE CHATEAU OF VERSAILLES.

difficulties the artist had to contend against in its erection, and that he was in many instances obliged to deviate widely from his own plans in deference to the wishes of others. His last work was the Chapel of Versailles, which he did not live to finish. In it he was allowed to put his ideas into practice without control, and it consequently possesses more excellence than any other of his achievements. He forms another example of the truth of the aphorism, that great men always appear when they are needed. No man less able could have carried out the giant schemes of Louis XIV., and Louis was not slow to reward him. He was decorated with the order of St. Michael, was appointed Architect to the King, and General Superintendant of Buildings, Arts, and Manufactures. He was one of the patrons of the Royal Academy of Painting and Sculpture. It was in this character that he represented to the King the desire of the body to revive the ancient custom of exhibiting the works publicly. Louis approved of their intention, and granted the gallery of the Louvre for the exposition. Mansart also procured for the Academy an increase of its allowance from Government, and presented to it a great number of figures, modelled from the antique, for the use of the students. He died suddenly in 1708, and was buried in the church of St. Paul, where there is a monument to him by Croysevox.

THE PORTRAIT GALLERY.

THE QUEEN AND PRINCE ALBERT.

The language of eulogy, when applied to kings and queens, generally becomes a direct falsehood, or subsides into unmeaning commonplace. The graceless Charles II. was "our most religious King." The royal libertine, who spurned from his home and heart, and consigned to an early grave, the wife he had sworn to cherish and protect, was hailed as "the first gentleman of the age;" and thus it has ever been. In the eyes of the world the graces of royalty amply compensate for its vices. When royalty is spoken of, the language of flattery only is heard. The censor speaks with bated breath. And thus the difficulty is increased when, as in the case of the illustrious individuals before us, the voice of praise is but the voice of truth.

In our sketch—as is but right—we must give the first place to our Sovereign Lady, Queen Victoria. The incidents of her life may soon be told. Her father was his Royal Highness Edward Duke of Kent, fifth child of George III. Her mother was Victoria Maria Louisa of Saxe Coburg Saalfield, who was born at Coburg on the 17th of August, 1786. In her sixteenth year this amiable princess became the consort of the hereditary Prince Leiningen; but after the birth of two children she became a widow, and was married to the Duke of Kent on the 29th of May, 1818, with all due splendour, at Coburg, in conformity with the Lutheran rites. The illustrious couple immediately set out for England, and on arriving at Kew Palace the marriage ritual was again performed according to the service of the Church of England. "This," says a writer in the "Annual Obituary" for 1821, "must be allowed to have proved a fortunate, for it was a happy, union. They exhibited towards each other the most marked attention and regard." The result of this union was the birth of Her Most Gracious Majesty Queen Alexandrina Victoria the First. In eight short months the mother was again a widow. The Duke of Kent expired on Sunday, January 28, 1821, one week previous to the demise of his royal father, George III.

The childhood of the Princess was passed under the guardianship of the Duchess of Kent, who, in every respect, appears to have been well qualified for the task. The Queen's governess was the companion and friend of the Duchess—the Baroness Lehzen; and one better adapted for fulfilling the duties of her situation could hardly have been selected. The Princess was early taught to consider herself as the possible future depository of a trust to be exercised only for the good of the whole community; and when, in the course of time, the succession to the throne became no longer a matter of speculation, the additional aid of the late Bishop of Salisbury, subsequently assisted by the Archbishop of Canterbury and the Bishop of Lincoln, was invoked. At the age of nine years the Princess had made considerable progress in the ordinary branches of polite education. She could understand the French, Italian, and German languages. But her *penchant* was evidently for the fine arts, more particularly music, for which, from her earliest childhood, she displayed considerable taste. We are told, on one occasion—the first, we believe, of the kind—when Beethoven's celebrated "Hallelujah to the Father" was performed before her Royal Highness, when that beautiful passage, "The exalted Son of God," burst upon her astonished ear, she manifested very great emotion. For several minutes after the conclusion of the chorus her Royal Highness seemed spell-bound, as though a new theory had suddenly been propounded to her imagination; and it was not till the expiration of some minutes, during which she seemed insensible to all around her, that she was able to give expression to her feelings of delight. A letter describing the confirmation of her Majesty, which took place July 30, 1835, may not be deemed uninteresting. "I witnessed," says the writer, "a beautiful touching scene the day before yesterday, at the Chapel Royal, St. James's—the confirmation of the Princess Victoria by the Archbishop of Canterbury. The royal family only was present. The ceremony was very affecting: the beautiful, pathetic, and parental exhortation of the Archbishop, on the duties she was called on to fulfil, the great responsibility that her high station imposed on her, the struggles she must prepare for between the allurements of the world and the dictates and claims of religion and justice, and the necessity of her looking up for counsel to her Maker in all the trying scenes that awaited her, most impressive. She was led up by the King, and knelt before the altar. Her mother stood by her side weeping audibly, as did indeed the Queen and the other ladies present. The old King frequently shed tears, nodding his head at each impressive part of the discourse. The little Princess herself was drowned in tears. The ceremony over, the King led her up to salute the Queen and royal duchesses present."

The following authentic fact exhibits a most gratifying feature in the character of her Majesty. A man named Killman, who served in the capacity of porter to the late Duke of Kent, had a daughter much afflicted and confined to her bed. On the evening of the late King's funeral, this young woman received from Queen Victoria a present of the Psalms of David, with a marker worked by herself, having a dove, the emblem of peace, in the centre, placed at the forty-first Psalm, with a request that she would read and derive from it the consolation it was intended to convey. The Queen is said to be passionately fond of children. The following anecdote went the round of the newspapers some few years since as an illustration. Her Majesty commanded Lady Barham, one of the ladies in waiting, to bring her family of lovely children to the Palace. They were greatly admired and fondly caressed by the Queen, when a beautiful little boy, about three years of age, artlessly said, "I do not see the Queen—I want to see the Queen;" upon which her Majesty, smiling, said, "I am the Queen," and, taking her little guest into her arms, repeatedly kissed the astonished child. We give one more anecdote, as an instance of her Majesty's religious feeling. A noble lord, in this respect very unlike her Majesty, arrived at Windsor recently late on Saturday night. "I have brought down for your Majesty's inspection," he said, "some papers of importance; but as they must be gone into at length, I will not trouble your Majesty with them to-night, but request your attendance to them to-morrow morning." "To-morrow morning?" repeated the Queen; "to-morrow is Sunday, my lord!" "But business of state, please your Majesty"—"Must be attended to, I know," replied the Queen; "and as, of course, you could not have come down earlier to-night, I will, if these papers are of such vital importance, attend to them after we come from church to-morrow morning." On the morrow, much to the surprise of the noble lord, the sermon was on the duties of the Sabbath. "How did your lordship like the sermon?" inquired the young Queen. "Very much, your Majesty," replied the nobleman, with the best grace he could. "I will not conceal from you," said the Queen, "that last night I sent the clergyman the text from which he preached. I hope we shall all be the better for it." The day passed without a word on the subject of the papers of importance, and at night, when her Majesty was about to withdraw, "To-morrow morning, my lord," she said, "at any hour you please, as early as seven if you like, we will go into these papers." His lordship could not think of intruding at so early an hour on her Majesty; "nine would be quite time enough." "As they are of importance, my lord, I would have attended to them earlier, but at nine be it." And at nine her Majesty was seated ready to receive the nobleman, who had been taught a lesson on the duties of the Sabbath it is to be hoped he did not quickly forget.

But we must return to our narrative. On the decease of her uncle, King William IV., June 30, 1837, her Majesty succeeded to the throne. On the 21st of the same month she was proclaimed, and on the 28th the ceremony of her coronation was performed. But we now come to an event of more importance—her marriage with Prince Albert, which took place February 10, 1840. It is time that we say something of the Prince, who is the husband of our Queen, the father of our future Kings, and to whom we are indebted for the idea of the Great Industrial Exhibition.

His Serene Highness Prince Albert Francis Augustus Charles Emanuel, Duke of Saxe, Prince of Saxe Goburg and Gotha, was born on the 26th of August, 1819, and received the first rudiments of education in the Castle of Erenburg. His father was one of the numerous honorary princes with which Germany abounds. Before the French invasion there were 300 of these principalities. At the Congress of Vienna, however, their number was reduced to 38. Besides its separation into states, Germany was divided by Wenceslaus in 1307, and by Maximilian in 1500, into nine grand sections, called circles. Of these two are comprised in Saxony Upper and Lower. In Lower Saxony we find Coburg Gotha, a territory not very large, but very much improved since the accession of Prince Albert's family. It is the most southern of the Saxon independent states, and is surrounded by Schwartzburg, Meiningen, Hildeburghausen, and Bavaria. The valley of the Itz forms the greater part of its territory. The Thuringian mountains stretch along the northern boundary of Coburg, which is only about one-fourth larger than Rutlandshire, having an area of not quite 200 square miles in extent. Joined, however, to Gotha, the territory of the Duke equals in size the county of Dorsetshire, having a surface of a thousand square miles. Much of this is covered by mountains and forest land. As to Prince Albert's family, we may here briefly state that the Duchess of Kent is his aunt, and Leopold, King of the Belgians, his uncle. We may further state that some of his ancestors were noticeable men. In the dimness that overhangs the days of Charlemagne we faintly perceive a Saxon chief named Wittekind, who for thirty years defied that Prince's power. From his loins sprung the race of which Prince Albert is a younger son. All readers of Luther's life know how he was befriended by the Elector of Saxony, Frederick "the Wise," John "the Constant," and John Frederick, "the Magnanimous." Prince Albert boasts these men as his ancestors. Their blood floats in his veins, still he is true to the faith they held.

We have already stated that Prince Albert received the rudiments of his education in the Castle of Erenburg. His masters were chiefly selected from the College of Coburg, and his proficiency was of the most signal character. After the death of Prince Albert's mother, Dorothy Louisa Paulina Charlotte Frederica Augusta, daughter of Augustus, the last Duke but one of Saxe Gotha Altenberg, while his father was engaged in arrangements for a second alliance, it was thought expedient that the Prince should be removed for a time from home, and he became the visitor of her Royal Highness the Duchess of Kent, and the fellow-student of the young Princess, whose heart and hand he was afterwards to share. Who knows but that were then sown the seeds of that attachment which rendered the after marriage of so different a character to what royal marriages generally are! Be this, however, as it may, Prince Albert, who had completed his eleventh year, partook of the lessons in the English language, music, and the various sciences, which were given to his illustrious cousin. Fifteen months were thus spent, when, after his father's second marriage, he returned home. So assiduous was the Prince in his application to study, that at the age of seventeen he passed with *éclat* an examination which admitted him into the University of Bonn, where his education was completed, and where, owing to his amiable manners and propriety of conduct, he became a general favourite.

When, at the close of his university career, Prince Albert returned to his father's court, the inhabitants of the duchy vied with each other in doing honour to the event. His entry into public life was celebrated by poems, balls, illuminations, and rejoicings of all kinds. Soon after the Prince paid a second visit to this country. The occasion was the coronation of her Majesty. Amongst the guests brought together by that event were no visitors more popular than the Prince and his illustrious sire. On his return the Prince prepared for a tour in Italy, where he spent the winter of that year. Already it is probable that the event which was to raise the Prince to so high a rank was in contemplation. It is said, on his return from Italy, the first object that met his eyes on entering his apartment was a portrait of her Majesty, which had, during his absence, been sent over for his acceptance from the Queen. At any rate, coming events did cast their shadows before. Hints were dropped by "our own special correspondent," and at the beginning of October, 1839, Prince Albert embarked with his brother, Prince Ernest, for his third visit to London. During this sojourn all doubts were put to flight, and on the 2nd of November following, her Majesty, at a court held at Buckingham Palace, declared that the Prince was the husband of her choice. The course of royal love did run smooth, and on the 10th of February, 1840, the service read alike over the highest and the lowest in the land, joined together the royal pair. Amidst the nation's joy the ceremony was performed; and long be it ere the tie be dissolved at the bidding of One mightier even than mailed baron or crowned king! The issue of that marriage are—1, Victoria Adelaide Mary Louisa, Princess Royal, born November 21, 1840; 2, Albert Edward, Prince of Wales, born November 9, 1841; 3, Alice Maud Mary, born April 25, 1843; 4, Alfred Ernest Albert, born August 6, 1844; 5, Helena Augusta Victoria, born May 25, 1846; 6, Louisa Carolina Alberta, born March 18, 1848; 7, Arthur Patrick William Albert, born May 1, 1850.

Prince Albert's fame preceded him on English ground. We had heard of him as a scholar, and a ripe and good one. A fellow-student of the Prince at Bonn, in a letter published in the *Times*, stated that the Prince was not only conversant with several European languages, but that he was deeply learned in the classics—that when at Bonn he had published an elegant volume of lyrics for the benefit of the poor—that his skill in painting was also considerable—and that in the composition of several songs he had shown himself a good musician. Proofs of these qualities have now become familiar enough. We were prepared for them, and not surprised at the manifestations of them; but we were not prepared for the untiring philanthropy, for the graceful domestic life, for the greatness of aim, evinced by the Prince. For the birth and realisation of that great idea which, more than any event in our own time, has aided progress, and has prepared the way for the brotherhood of man, the world must for ever hold in veneration the memory of the Prince. No prouder monument could man desire. When the Pyramids shall have crumbled away—when the monumental brass shall have decayed—when London shall be what Tyre and Sidon are now—still 1851 will be memorable in the annals of the world; and labour's sons will remember, as they toil at the loom, or the forge, or the plough, or the mine, who it was that vindicated for labour her proper place in the breasts of men—who it was that asked the world to do homage to peace and its attendant arts.

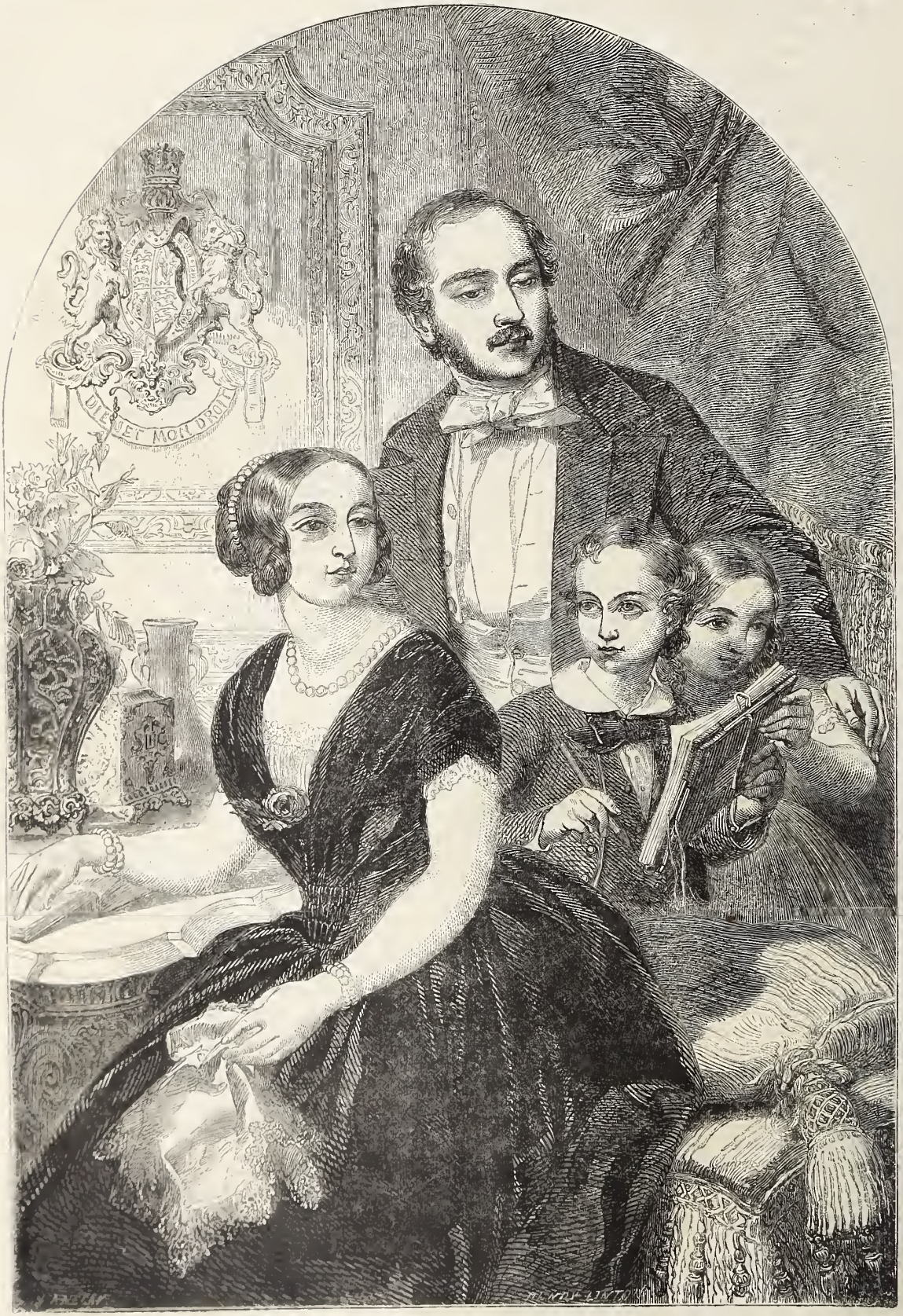
With all our great institutions—with all our national celebrations—with all our national sympathies—have the names of Victoria and Albert become entwined. When revolutions raged in neighbouring lands—when blood was spilt in Vienna, in Paris, in Berlin—when thrones tottered to their fall—in our land peace and order remained secure. The future historian will have to tell how, when Victoria went amongst her people—whether she visited the cotton-spinners of Manchester or the peasantry of Buckinghamshire, or in the presence of the denizens of every clime, in fitting manner, with the organ's peal and the voice of prayer, opened the Crystal Palace—all along the way glanced eager and admiring eyes, and everywhere were the teeming manifestations of a nation's loyalty and love. The common respect due to those in authority would never have secured this. We must seek for the popularity of the Queen and her Royal Consort elsewhere — in the manifestation of those virtues, and attainments, and powers, which win no mean place for the possessors of them in private life. Already an inscription commemorative of the virtues of our Queen has been written by our poet-laureate. We give it, as a graceful conclusion to this hasty sketch:—

"Her court was pure; her life serene;
God gave her peace; her land reposed;
A thousand claims to reverence closed
In her as mother, wife, and queen.

She brought a vast design to pass,
When Europe and the scattered ends
Of our fierce world were mixed as friends
And brethren in her halls of glass.

And statesmen at her council met,
Who knew the seasons when to take
Occasion by the hand, and make
The bounds of freedom broader yet,

By shaping some august decree
Which kept her throne unshaken still,
Broad-based upon her people's will,
And compassed by the inviolate sea."



HER MAJESTY QUEEN VICTORIA, PRINCE ALBERT, THE PRINCE OF WALES, AND THE PRINCESS ROYAL.



M. MATIFAT'S STALL IN THE GREAT INDUSTRIAL EXHIBITION.—CENTRE AVENUE.

REMINISCENCES OF THE GREAT EXHIBITION.

Under this head we shall refer, from time to time, to the almost innumerable objects of interest which graced the walls and stands of the glorious Crystal Palace. Without attempting anything like classification, we shall select for examination and illustration such remarkable contributions as the exigencies of time and space have hitherto permitted but feeble record. Indeed, such is the apparent inexhaustibility of that wondrous collection, that, on a retrospective glance, the mind despairs of comprehending it as a whole; but now that the crowds have separated, and the gates are closed; now that the excitement has somewhat cooled, and visitors from foreign parts and quiet country places have again reached their homes; now that the splendid trophies of human ingenuity and enterprise have returned to their respective owners, and that vast array of wealth and grandeur is dispersed—we begin to faintly realise the magnitude and purpose of the Great Industrial Bazaar.

The Exhibition of the Industry of all Nations having finally closed, we are enabled to look on its results as matters of history, and recal the various events of those eventful months with a somewhat calmer and more philosophic spirit. Two reflections arise out of the mass, which, above all the rest, will read the world a great lesson. The first, that thousands of people, gathered from every civilised corner of the earth, speaking different languages, brought up under different modes of government, exercising different forms of religion, and putting faith in different creeds, passed daily through the noble edifice, not only without accident or mischief, but positively without inconvenience to themselves. The people were their own police; and the six millions went, and wondered, and departed in good-will and peace. History records no fact like this. Not less surprising, or less suggestive, is the amazing thought that seventeen thousand exhibitors, who, like the visitors, were of almost every nation and kindred under heaven, entrusted the most valuable evidences of their wealth, their skill, their industry, and their enterprise to the guardianship of some fifty policemen, armed with no better weapon than a wooden baton, and earning wages but little superior to that of the day-labourer. Day after day and night after night passed on, and no added force was requisite for the safety of the almost countless wealth deposited within those fragile walls. One can scarcely comprehend the strength of so much confidence and reliance on the law and order of Great Britain. In no other country of the world could such an exhibition of the industrial arts have taken place. Do we say this boastingly, or of a vain spirit? No; rather let us humble ourselves before the Throne of Mercy, and be thankful that it has been vouchsafed to us in our generation to lead the peoples onward in the march of peaceful enterprises and industrial triumphs.

On reviewing the list of prizeholders, we cannot but be struck with the number of medals awarded to our neighbours the French, for their excellence in all that pertains to the elegant in art; and by presenting to our readers a picture of

THE CONTRIBUTIONS OF M. CHARLES MATIFAT.

we believe that we are doing them good service. The bronzes of France have been long and deservedly celebrated, and a goodly show of them accordingly appeared in the Crystal Palace—clocks, chandeliers, vases, Greek, Etruscan, and mediæval cups, centre-pieces, fancy articles, figures, household appliances, and ornaments innumerable; and of the French exhibitors in bronze and silver MM. Matifat and Vittoz were confessed the most successful. Indeed, you might know where to find the stall of the former gentleman, by looking from the gallery for a well-dressed crowd!

An examination of the bronzes of France proves incontestably that art-knowledge and manufacture have taken a permanent hold on the national mind. Here are vases in which the graceful forms of Etruria and Greece are revived, and the eternal line of beauty rendered in a thousand pretty ways. Surely there is an education of the eye, which is not without its useful results in refining and civilising the mind. Here is a glimpse of the Palais Royal without the trouble of travel. Endless devices in silver, bronze, and metal-work, which gleam and glitter in the sunlight as gaily as is their wont in noble saloon or bright boudoir, arrest the eye. Candelabra and marble tables, ivory caskets and artificial gems, set prettily in filigree that looks as valuable as though it were real gold and silver, catch the wandering attention. Anon an army of clocks, in which the ever-varying fancy of the artist has full play. Figures of *le petit corporal* in all varieties of attitude—on horseback on the Alps, with cloak thrown back and raised right hand—sitting beside watchfires in lonely bivouacs, or brooding moodily out upon the wide, cheerless ocean from a barren rock; Huguenot and Puritan lean heavily on basket-hilted swords; Saracen and Crusader face each other bravely, with uplifted partizan and deadly lance; the cavalier rides madly on, urging the wildest of steeds; the Arab waves aloft his long, slender spear; and warriors of every nation and time appear as supports to these magnificent horologes.

Under the term bronzes are included many varieties of manufacture. Bronze, properly so called—the metal in which Cellini produced so many wonders of art-workmanship—is composed of an amalgam of copper and tin in various proportions; and the ancients are said to have occasionally added small quantities of silver and lead. Good bronze metal furnishes the artist with a fusible, hard, and durable material, capable of receiving a high degree of finish.

Bronzes in electrotype are but imitations and reproductions in metal of works in plaster, wax, clay, &c. By this process all the minute chasings and ornamentations in the original can be produced with marvellous fidelity and minuteness. They are very different in character, however, from those works of art which are chased and finished by the hand of the sculptor.

The other and more common acceptation of the phrase are those castings in inferior metals, which, by the aid of bronze powders, paints, &c., are made to assume the appearance of the higher-class work. Numerous specimens of this kind of imitation—an imitation which has only cheapness to recommend it—appeared in the Exhibition; various casts in zinc, both bronzed and in the natural colour of the metal, attesting the capabilities of that metal. Among the examples of bronzed zinc may be instanced the colossal, but not very successful, statue of the Queen, exhibited by the Vieille Montagne Company, and the wonderful Horse and Amazon, of Kiss, from the foundry of Geiss, of Berlin.

To notice in detail the majority of the objects which graced the stall of M. Matifat would occupy greater space than we can well afford; though we may instance, as evidences of extreme good taste combined with the requisite success in manufacture, the ivory cabinet with the mother dancing her infant on her knee—seen under a glass case in the centre of our engraving,—the mirror in the style of Louis Quartorze, the metal chandelier, and the pillar with ornamented base. All the works exhibited by this gentleman, indeed, bear witness to a highly educated taste, and a good knowledge of the capabilities of materials.

The manufacture of bronzes may be said to be yet in its infancy in Great Britain. It must be remembered, however, that the foreign workman enjoys the advantage of experience aided by a sound artistic education; and that the close connection of this branch of manufacture with the fine arts, has rendered the productions of France so far superior to those of our own country, that we might despair of winning the race in art-manufacture for many a long day to come. But we must not despair. The Exhibition has taught us many valuable lessons, not the least of which is the importance of a high-class education for the workmen. To attain excellence in any art, it is necessary that we should study to invent. The wholesale piracy of designs not only makes no artists, but it actually produces workmen indifferent to the claims and rewards of genius—throws impediments in the way of improvement—and, what is perhaps the most convincing argument with Englishmen, does incalculable injury to trade.

Let us, then, improve the time while the memory of the Great Exhibition is yet fresh in our minds, and profit by the opportunities we have had for a close examination of the products of other nations—opportunities which may never occur again.

NATURAL HISTORY.

WHAT IS AN EGG?

Of the thousands who eat eggs every morning at their breakfast, probably very few look upon them in any other light than as things to be eaten, and not worth a moment's examination, beyond what may be necessary to ascertain their soundness. And yet an egg is one of the most marvellous—nay, one of the most important—objects in the creation. It forms the origin of every individual in the animal world. "*Omne animal ex ovo*," said Harvey; and the utterance of this aphorism forms, perhaps, almost as large a contribution towards this great man's celebrity, as his discovery of the circulation of the blood.

Every animal is born from an egg! The truth may be new to many—but it is not the less a truth on that account. There is perfect sameness in the origin of everything which lives and grows. Plants and animals both spring from a simple cell; the after differences, however great or numerous, are but the developments, more or less extended, of the same primitive organisation. It may seem humiliating to believe that man, with the thousand conflicting passions of his heart, his "large discourse, capability, and god-like reason," should owe his origin to an atom as insignificant as that from which the poor toad which leaves its slime on the garden-walk has sprung; but it is instructive, as furnishing us with a new proof that we cannot "by searching find out God." The law of unity without uniformity is the supreme law of the universe. We see it in the stars, in plants, in animals, in man himself. It is a pity that men cannot be brought to acknowledge its authority in matters of belief.

Doubtless, at first thought, many would allege without hesitation that eggs are the peculiar characteristic of birds; but when we consider that fishes, differing so widely in their organisation and mode of life, propagate their species by eggs also, we shall at once perceive the probability that this is the case with all other animals. Upon closer examination, we find this supposition resolving itself into a certainty, the only difference being that, in the case of fishes and birds, the eggs are produced in an imperfect state, and left to be hatched by the heat of the water or air, or are covered up in a warm nest, whilst in the other they are enclosed in the bosom of the parent until the young animal has come to maturity sufficient to enable it to live in the outer world. It is only in the former instance, however, that we can watch the process of development, and to it, therefore, we shall confine our attention. This process is perfectly analogous in both cases.

What, then, is an egg—a bird's egg? It is an animal, as yet small—very small, not the thousandth part of an inch in length, and possessing only those organs which are necessary for its present existence and the gradual development of its other parts, and enclosed in a shell, with as much food as is necessary for its nourishment during the period of its confinement. The animal is the little whitish circle which may be observed upon the membrane which surrounds the yolk, and the yolk itself is food designed for its support. The yolk, then, is precisely analogous to the milk of the *mammalia*, or animals which nourish their young by suckling them; and the shell supplies the want of hair or clothing, by protecting the embryo from injury, suffering nothing to enter save the necessary quantity of heat and air, both of which find their way in through extremely fine pores. It must be remembered that eggs bear no proportion whatever to the size of the animals to which they belong. All animals, from the humming-bird to the elephant, are almost the same size in the commencement of their existence. The difference of the eggs is due to the difference in the amount of nourishment required; and this amount is strictly regulated by nature in relation to the size to which it is necessary the young animal must attain before it will be able to live in the outer world. And this evidently varies according to its organisation and future mode of life. To make our meaning clearer, the crocodile is destined to attain to an enormous growth, and yet its egg is smaller than that of many birds, because its young is able to get into the water and live upon its own resources before it is any larger than one of our lizards. There is, therefore, only as much food placed in the shell as will support it until it attains to that size—so that the egg is not much larger than that of a hen. So also, in the case of some very large fishes, the eggs are extremely small, because the young ones are able at a very early age to seek their own subsistence in the sea or the rivers. But a dog-fish needs to have great strength, and consequently great size, when it is set at liberty, and the egg in which it is produced is large, in order to give it a longer period for its development.

But it must be observed, on the other hand, that amongst those animals, whose mode of life is pretty nearly the same, the size of the eggs does bear proportion to the size of the animals which produce them. The size of the ostrich and of the humming-bird, when in the womb of the mother, does not differ in the least; but the nearer they approach to the term of their respective growths, the greater does the difference become. The difference at the period when the eggs are laid is very great; because the quantity of nourishment required in the one case is much larger than in the other.

The great difference between *viviparous* and *oviparous* animals is, the presence or absence of the egg at the period of birth. In the former case the young are brought to comparative maturity in the womb of the mother, inclosed only in a slender membrane, and nourished from day to day by her life-blood. In oviparous animals, on the contrary, the nourishment is supplied all at once, and inclosed with the embryo in a hard protective covering. By fishes, insects, and the greater number of reptiles, the egg is henceforth left to its fate to be brought to maturity by the heat of the sun, in the water, in the earth, or exposed to the open air.

But the young of most birds require not nourishment only, but a constant high temperature to bring them to maturity. This is supplied by inclosure in a nest, and by the heat of the parent's body. When the food inclosed in the shell is all used, the little animal comes forth. It is then either able to seek its own subsistence, as in the case of chickens; or where a great development of muscular power is needed to enable it to pass through the air, the parent still continues to supply the necessary support.

We hope we have said enough to show our readers the immense interest attached to the study of those very common things called eggs. There is none more worthy the attention of naturalists; but, at the same time, there is none more difficult. The great delicacy of the phenomena which present themselves, and the great complexity of the conclusions we have to draw from them, and, above all, the veil which men have for so long a period seemed disposed to throw over the origin of the living animal, have surrounded the subject with innumerable obstacles. But we may rest assured that whatever *is*, is a fit subject for human research.

> "He that gifted us with so large discourse,
> Gave us not that capability and god-like reason
> To rust in us unused."

Nothing should be declared a mystery intended by Providence to be kept hidden from human eyes, until human intellect has, after repeated efforts, been baffled in the attempt to solve it. It is time enough to warn us away from the inner sanctuary of the temple of science, to cry with a voice of religious awe, "*Procul, O, procul este profani!*" when our worship has ceased to be humble and devout, and has become impertinent curiosity or impious prying.

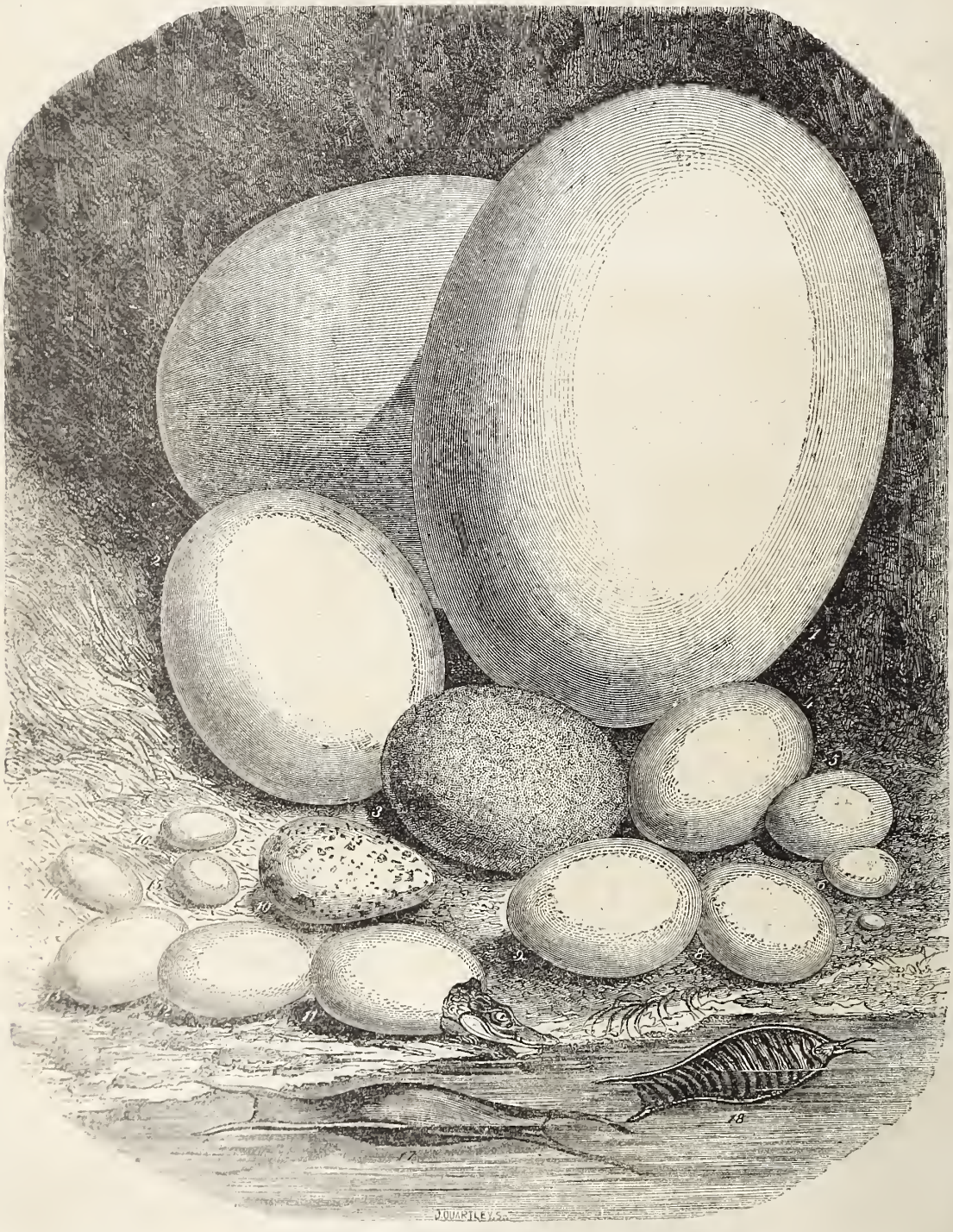
We may at some future period return to this most interesting subject; and we shall here mention, for the information of our readers, that the *epyornis* referred to in our engraving was a large bird, of which the fossil remains have been discovered in Madagascar. The bird itself is no longer in existence.

To obtain a clear idea of the immense size of this bird, we have but to compare its egg with that of the ostrich. If the proportion of the bodies of the two birds be the same as that of their eggs, the epyornis would be to the ostrich as six to one.

None of the remains of the former have been discovered except

the eggs and some bones, but there cannot exist the smallest doubt that both belong to the same animal. Some difficulty might be felt in pronouncing whether the eggs were those of an immense reptile, or a large bird. The structure of the shell is precisely analogous to that of the eggs of birds with short, or *rudimentary*, wings; but the question has been set at rest by the discovery of bones close at hand. Upon an examination of the latter, some eminent naturalists have arrived at the conclusion, that this great bird of Madagascar should become the type of a new genus in the classification of the *brevipennes*, or short-winged birds.

The epyornis was discovered buried in alluvial deposits, evidently of recent formation; and this circumstance warrants the belief that it belonged to the *fauna* of the present age; and not only so, but that it was still in existence at no very distant period.



COMPARATIVE VIEW OF THE SIZE OF THE EGGS OF DIFFERENT ANIMALS.

1. Epyornis.
2. Ostrich.
3. Cassowary.
4. Wild Goose.
5. Hen.
6. Pigeon.
7. Humming-bird.
8. Eagle.
9. Vulture.
10. Penguin.
11. Crocodile.
12. Python.
13. Freshwater Tortoise.
14. Boa of St. Lucia.
15. Tortoise.
16. Ophidian.
17. Dog-fish.
18. Ray-fish.

WORKS OF THE GREAT MASTERS.

THE INUNDATION.

None of the elements have contributed so much to the progress of civilisation as water and fire, and yet none have inflicted upon man calamities so terrible. The burning prairie and the roaring ocean are invincible by any exertion of unaided force which he can bring to bear against them. But in him intelligence more than supplies the want of material strength. The hunter fires the prairie to the leeward, and stands unscathed in the midst of a circle of flame, while the affrighted deer flies onward and is destroyed.

The battle, it is true, is not *always* to the strong alone, but it is *sometimes*—nay, often. Fire often burns down houses, often whole cities, despite our efforts to prevent it. The ocean overwhelms the mightiest navies, and breaks down the strongest embankments. In these awful catastrophes man seeks safety in his reason, the brute in its instinct; but the latter seems to recognise the superiority of the human intellect by flying to its master for aid in great peril. The association of the animal and the man creates between them a bond of affection—a sort of *solidarity*, so to speak, the result rather of sentiment than of calculation. What makes us regret the loss of the dumb companions with which they have lived is not their value only, but the love they bear us. When the Persian King drove the Athenians from their native city, their dogs crowded to the place of embarkation and attempted to get on board the gallies. When driven back, they returned to the city, and wandered up and down the deserted streets, howling piteously. And we are told that many a hardy soldier, whom the loss of his property and the approaching destruction of the favoured republic of the blue-eyed goddess could not move, was softened to tears by this sad farewell of the poor dogs. The sailors rested on their oars, and the whole army listened for a few minutes in mournful silence.

It has long been a matter of dispute at what point instinct may be said to end and reason begin. Whether it will ever be satisfactorily ended we cannot take upon ourselves to determine; but this much is certain, that acts and expressions of feeling have been recorded of animals, which, if they were not dictated by reason, at least prove beyond doubt that the brutes are in the habit, in many instances, of drawing deductions from analogy. We cannot tell how far the resources of the lower creation, in positions of peril and difficulty, may be diminished by want of experience. It is a pity that it is only within the last few years that men of science have begun to direct their attention to the subject. Perhaps no body is placed in a more favourable position or making researches in this department of natural history than artists, and to their labours we have of late been indebted for many striking illustrations of the habits of animals, valuable not less for their truthfulness than for their scientific accuracy.



(Drawn by Freeman, after a Painting by Kiorbœ.)

In our engraving the artist has chosen a subject which exemplifies not only the horrors of inundation, but strikingly depicts the alternations of hope and despair, mortal fear, and maternal affection, in a dumb brute. We comprehend at a glance the imploring agony of the position—the last resource of unaided instinct; we can almost fancy we hear the plaintive howl of distress, and feel, in spite of ourselves, some sympathy with the struggles of the mother and her young for safety. The planks of the kennel are already giving way. In the distance is a village, half submerged; a boat is putting off to the relief of the drifting family. It is one of the best efforts of the painter.

THE LADIES' DEPARTMENT.

At the commencement of the new year, and in the opening chapter of our Instructions in Needlework, a few words as to the scope and aim of our design will not, perhaps, be deemed inappropriate. From the earliest ages, the needle has been a resource to women in all stations of life. To the wealthy it has proved the solace of many an hour of suffering and sorrow; to the poor it has been, in addition, the means of earning a livelihood. This source of income has, moreover, advantages which few can boast. It does not involve the rending asunder of domestic ties (inevitable in many other branches of industry); it does not require an expensive education, or extraordinary talent. It is therefore peculiarly suited to the requirements of numbers of young women, and thousands have, of late years, gained their bread by their skill in decorative work. Until recently, embroidery, crochet, and knitting, in various styles, were the principal branches of ornamental needlework. Now another has been introduced, which bids fair to rival them all, and has, indeed, advantages which no other possesses. We allude to the art of making point lace—an art once practised by every gentlewoman, and brought to the highest perfection in the convents both of England and foreign countries; but which, for more than a century, fell so completely into neglect, that at length it came to be regarded as one of the marvels of other days—a sort of mysterious secret, lost in the lapse of years. But the great value attached to these relics of antiquity induced some adventurous individuals to turn their attention to them, in the hope of being able to produce similar wonders; and gradually, *very gradually*, specimens of lace, scarcely inferior to the choicest antique in design and execution, have been manufactured by these enterprising women. Were we to detail a tithe of the difficulties which they have had to surmount, we should scarcely be credited. Even the materials had, in many cases, to be manufactured expressly for the lace, for few of those in ordinary use were suitable for this delicate work; and then, though needles had greatly improved since the days of the Stuarts, unfortunately, *needlewomen* had not. We believe it is generally admitted that plain needlework is an art which has been greatly neglected during the last few years. It is, indeed, one of the rarest accomplishments. A celebrated author observes, that twenty young ladies can sing passably for one who can read well. It is equally true that *twenty* can do crochet or Berlin work for every *one* who can make a shirt.

For embroidery, and many articles in crochet and knitting, the materials are so expensive as to become a serious consideration, while the finished articles are of comparatively little value. Now, in point lace, the labour is the outlay; the materials have merely a fractional value. Hence it is peculiarly suited to those whose means are limited; and if the designs and instructions we shall be enabled to lay before our readers assist in adding to their means or pleasures, our labours will be well repaid.

Point lace, in all its varieties, with diagrams of the stitches, will therefore form one of the leading features of the Needlework Department of The Illustrated Exhibitor, and Magazine of Art for 1852; and novelties in embroidery, crochet, knitting, netting, and every other kind of fashionable feminine employment, will have its due place. Nor will the current fashions be neglected. To dress becomingly is the duty of every woman, in every station; and we trust our hints on the prevailing modes of attire, aided by the observations of some of our most eminent *artistes*, will be acceptable to our fair readers.

In conclusion, let us add, that we shall avail ourself of every means which the experience of years can suggest to make the Ladies' Department of The Illustrated Exhibitor the most perfect of its kind. In designs and receipts we purpose giving the very best and most appropriate materials that English or foreign manufacturers can supply. We shall notice improvements in articles and implements; and, in availing ourself of the increased knowledge obtained by daily study in the great school of art afforded by the Exhibition of the year now past, we hope to render this branch of our Magazine of Art acceptable to all classes of our countrywomen.

INSTRUCTIONS IN CROCHET.

It being our wish to give, as we proceed, as great a variety of subjects as possible in the Ladies' Department, we will begin by a brief abstract of the terms used in crochet, with such other instructions as may be necessary for understanding every receipt and design that can possibly appear. Should future difficulties puzzle the worker, it is to be hoped that a reference to these instructions will assist in overcoming them.

The Stitches used in crochet are, *chain, slip, single, double, treble, and long treble crochet.*

To Make a Chain, form a loop on the thread, insert the hook in it, and draw the thread in another loop through this. Continue this to form a succession of stitches.

Slip-stitch is made by drawing a thread *at once* through any given stitch and the loop which is on the needle.

Single Crochet (written s.c.).—Having a loop on the needle, insert the hook in a stitch, and draw the thread through in a loop. You then have two on the hook; draw the thread through both at once.

Double Crochet (d.c.).—Twist the thread round the hook before inserting it in the stitch, through which you draw the thread in a loop. Three loops being then on the needle, draw the thread through two, and then through the one just formed and the remaining one.

Treble Crochet (t.c.) and *Long Treble* (long t.c.) are worked in the same manner; in the former the thread is put *twice*, in the latter *three times*, round the hook, before inserting it into the stitch.

To Join Leaves.—When one part of a leaf, flower, &c., is to be joined to another, drop the loop from your hook, which insert in the place to be joined; draw the loop through and continue working.

To Pass from one Round to another without Breaking the Thread.—In working mats and many similar articles this is very desirable. Having finished one round, see whether a s.c., d.c., or t.c. stitch begin the next; for s.c. make one chain, for d.c. three, for t.c. four; slip the needle out, and twist the chain, then continue working. This twisted chain will have all the appearance of a d.c. or t.c. stitch. Should the round not begin exactly in the same place, slip-stitch to the part where it commences, as it will seldom be more than a few stitches in advance.

Square Crochet is a term often used, and generally understood, as the engraved patterns are mostly in it. Lest, however, any of our readers should not be familiar with the name, we will explain it. The squares are either open or close. An open square consists of one d.c., two ch.—missing two on the line beneath, before making the next stitch. A close square has three successive d.c. Thus, any given number of close squares, followed by an open, will have so many times three d.c., and *one over*; and any foundation made for a pattern to be worked in square crochet will have a number of chains divisible by three, leaving one over.

To Contract an Edge.—In forming leaves and many other things, this is very useful. It can be done in d.c., t.c., or long t.c. Having twisted the thread round the needle as often as the stitch may require, insert it in the work, and half-do a stitch. Instead of completing it, again twist the thread round, until the same number of loops are on, and work a stitch completely. Thus for two stitches taken in the work, there is only one head. This being successively repeated materially contracts an edge.

To Join on a Thread.—Avoid joins in open work as much as possible. In close work, whether d.c. or s.c., they will not be perceived. Finish the stitch by drawing the new thread through, allowing a couple of inches for both ends, which you hold in.

To Work with several Colours.—Hold the threads not in use along the edge of the work, and work them in. When the colour is to be changed, begin the stitch with the old colour, and complete it with the new, which continue to work with, holding the other in. If only one stitch of a colour is to be used, you finish one stitch, and begin the next with it; then change. Colours are seldom intermixed, except in solid work, such as the ends of purses, mats worked over cord, and the like.

To Work Over Cord.—Hold it in the left hand, with the work, and work round it, as you would if it were merely an end of thread. The stitches must, however, be sufficiently close to cover it entirely.

To Work with Beads.—Beads must be first threaded on the silk, or other material, and then dropped, according to the pattern, on what is usually thought the wrong side of the work. This side presents a more even appearance than the other. It follows that when bead purses are worked from an engraving, they are worked the reverse of the usual way—namely, from right to left.

The Marks used in Crochet Receipts.—These are very simple, when understood. They are printers' marks—asterisks, crosses, daggers, and sometimes one or two others. They are used to mark repetitious, and save space. The principal thing to observe is, that in every row or round, if *one* of any kind is used, a second, *similar* one, is sure to be found; and that the repetition occurs between the two, however far distant apart. Suppose a row of a pattern to be written thus:—× 2 d.c., 4 ch., miss 4, * 1 d.c., 1 ch., miss 1, * three times, 5 d.c., × twice; it would, at full length, be—2 d.c., 4 ch., miss 4, 5 d.c., 1 ch., miss 1, 5 d.c., 1 ch., miss 1, 5 d.c., 1 ch., miss 1, 5 d.c., 2 d.c., 4 ch., miss 4, 5 d.c., 1 ch., miss 1, 5 d.c., 1 ch., miss 1, 5 d.c., 1 ch., miss 1, 5 d.c. It will be seen that one repetition often occurs *within another*, as in the stitches between the asterisks. Another mode of shortening receipts can be used only where a row has a centre both sides of which correspond; the latter being the same as the former, worked *backwards*. Then the letters *b*, *a*, are used, to mark that in the latter part of the row you reverse the instructions. *b*, 7 d.c., 3 ch., miss 2, 1 d.c., 2 ch., miss 1, *a*, 1 d.c. (the centre stitch), would be, 7 d.c, 3 ch., miss 2, 1 d.c., 2 ch., miss 1, 1 d.c., miss 1, 2 ch., 1 d.c., miss 2, 3 ch., 7 d.c. These letters and the printers' marks are equally used in knitting. It is easy to see how much space is gained by the use of these abbreviations, a knowledge of which is easily acquired. Probably many of our friends are already familiar with the substance of this preliminary lesson; but as daily experience convinces us that many are still ignorant of the principles of crochet, we trust the good-nature of the adepts will lead them to excuse this occupation of a page, in consideration of the benefit it will be to their less fortunate friends.

One word on the implement termed a crochet-hook. It should not be sharp or pointed, either in the point or barb, but smooth, and quite free from any angularity that can catch the silk. Cheap and common crochet-hooks are in the end the dearest, as they break cotton, ravel silk, wear out the patience, and prick the finger. They should be of the best steel, highly polished, and firmly fixed in ivory handles. Those we use have been made at our recommendation, and have the *size* engraved on every handle. This saves the tiresome and uncertain reference to a guage. These hooks are termed "*tapered, indented*" crochet-hooks.

Editor of Ladies' Department.

LOUNGING CAP (IN CROCHET).

Materials.—6 skeins of bright scarlet Berlin wool; 5 shades of green ditto, 6 skeins each; 12 skeins of black, and 4 of grey; 4 skeins of white, and 4 of grey floss or filoselle silk. A handsome shaded tassel, and a ball of rather fine twine.

The whole of this cap is worked in s.c. over the twine. Begin with the band round the head, by working 240 stitches with black wool, on the twine, and closing into a round.

2nd Round (black and grey wool): × 2 black and 2 grey alternately, × all round.

3rd (B. wool, white silk): × 1 b., 3 w., × all round.

4th: Black all round.

5th: Scarlet all round.

6th (Scarlet and darkest green): × 2 s., 4 g., 42 s., × 5 times.

7th (Scarlet, same green, and white): × 2 s., 5 g., 6 s., 3 w., 9 s., 3 g., 16 s., 2 w., 2 s., × 5 times.

8th (Scarlet, 2nd darkest green, black, and white): × 2 s., 2 g., 1 b., 3 g., 4 s., 5 w., 4 s., 2 g., 1 s., 3 g., 5 s., 4 g., 4 s., 3 w., 1 s., 3 w., 1 s., × 5 times.

9th (Same colours): × 2 s., 3 g., 1 b., 2 g., 4 s., 1 w., 4 s., 4 w., 2 s., 2 g., 6 s., 6 g., 2 s., 5 w., 1 s., 2 w., 1 s., × 5 times.

10th (Scarlet, black, white, and grey silk, 3rd shade of green): × 3 s., 3 g., 1 b., 1 g., 2 s., 2 w., 1 s., 4 grey, 1 s., 4 w., 2 s., 1 g., 5 s., 3 g., 1 b., 3 g., 1 s., 4 w., 2 s., 1 grey, 1 s., 2 w., × 5 times.

11th (Same colours): × 1 w., 3 s., 4 g., 1 s., 2 w., 1 s., 1 grey, 1 s., 4 grey, 1 s., 3 w., 3 s., 3 g., 2 s., 2 g., 1 b., 4 g., 1 s., 3 w., 2 s., 3 grey, 1 s., 1 w., × 5 times.

12th (Same colours, except green, which change to the next lightest shade): × 2 w., 3 s., 6 g., 1 s., 1 grey, 2 s., 3 grey, 1 s., 2 w., 3 s., 5 g., 1 s., 1 g., 1 b., 4 g., 2 s., 3 w., 1 s., 2 grey, 1 s., 1 grey, 1 s., 1 w., × 5 times.

13th (Same colours, with lightest green): × 2 w. (over the two first of last round), 7 s., 3 g., 2 w., 3 s., 1 grey, 1 s., 1 w., 3 s., 4 g., 2 b., 1 g., 1 b., 4 g., 3 s., 5 w., 1 s., 2 grey, 1 s., 1 w., × 5 times.

14th (Same, with lightest green but one): × 1 w., 3 s., 5 g., 2 s., 2 w., 1 s., 3 grey, 1 s., 3 w., 2 s., 2 g., 2 b., 4 g., 5 s., 2 g., 1 s., 1 w., 1 s., 2 grey, 1 s., 2 grey, 1 s., 1 w., × 5 times.

15th (Same, with next darkest green): 3 s., 4 g., 1 b., 1 g., 2 s., 1 w., 1 s., 1 w., 1 s., 2 w., 1 s., 3 w., 2 s., 7 g., 1 s., 5 g., 2 s., 3 w., 1 s., 3 grey, 1 s., 1 w., 1 s., × 5 times.

16th (Scarlet, black, white, and next darkest green): × 6 g., 1 b., 2 g., 2 s., 3 w., 2 s., 5 w., 3 s., 5 g., 1 s., 3 g., 1 b., 2 g., 2 s., 4 w., 3 s., 1 w., 1 s., 1 g., × 5 times.

17th (Same colours): × 1 s., 1 g., 1 s., 2 g., 1 b., 3 g., 3 s., 9 w., 2 s., 1 g., 6 s., 2 g., 1 b., 3 g., 5 s., 5 w., 2 s., × 5 times.

18th (Scarlet, white, darkest green): × 1 g., 2 s., 5 g., 5 s., 4 w., 1 s., 2 w., 2 s., 2 g., 6 s., 5 g., 7 s., 3 w., 3 s., × 5 times.

19th (Scarlet and darkest green): × 4 s., 3 g. (over centre 3 of 5 g.), 15 s., 1 g., 8 s., 3 g., 14 s., × 5 times.

Four rounds of scarlet complete the band round the head.

The Top of the Cap.—This is worked from the centre, and gradually increased until of the same dimensions as the band, that is, containing 240 stitches.

1st: Begin by working 12 stitches with black wool on the twine, and forming into a round.

2nd: Increase to 24 stitches.

3rd: Increase to 40.

4th (Black and grey): × 2 g., 2 b., × 13 times.

5th (Black and white): × 3 w. over 2 grey, 2 b. over b., × 13 times.

6th (Black and scarlet): × 4 s. over 3 w., 2 b. over b., × 13 times.

7th to 11th Rounds: All scarlet, increasing sufficiently to keep the work perfectly flat, and having 120 stitches in the last round, or 8 times 15.

12th (White, scarlet, and lightest green): × 5 g. on 4 s., 2 s. on 2, 1 g. on 1 s., 3 s. on 3, 3 w. on 3 s., 4 s. on 3, × 8 times.

13th (White, scarlet, 2nd lightest green): × 3 s., 4 g., 4 s., 2 w., 2 s., 1 w., 2 s., 1 g., × 8 times. [Observe that care must be taken to increase, so that the pattern begins always at the same point.]

14th (White, scarlet, and 3rd green): × 2 g., 2 s., 2 g. (over 2nd and 3rd of 4 g. in last round), 5 s., 3 w., 2 s., 1 w., 1 s., 2 g., × 8 times.

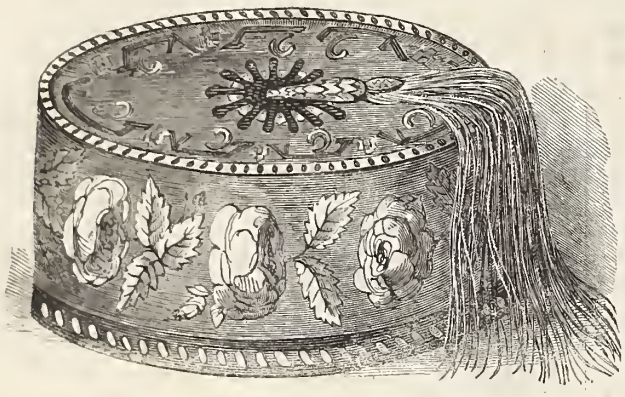
15th (Same green, white, and scarlet): × 2 s. over 2 g., 2 more s., 1 g., 1 s., 1 g., 3 s. over 2, 1 g., 2 s., 2 w., 2 s., 1 w., 2 s., 2 g., × 8 times.

16th (Darkest green but one, white, and scarlet): × 1 s., 2 w., 1 s., 1 w., 1 s., 2 g., 1 s., 2 g., 5 s., 2 w., 1 s., 2 g., 1 s., × 8 times.

17th (Same colours): × 1 s., 4 w., 3 s., 3 g., 5 s., 2 w., 1 s., 2 g., 3 s., × 8 times.

18th (Darkest green, white, and scarlet): × 2 s., 2 w. (over 2nd and 3rd of 4 white in last round), 5 s., 12 g. (the last over the 1st of 2 green), 5 scarlet, × 8 times.

There will now be 208 stitches. Work two rounds of scarlet (increasing to 240), and then join on the band. This is done by holding the top of the band and edge of the round together, and working one round, taking up the chain of both. Work on the twine with black wool and white silk, 2 stitches of each alternately. Draw in the end of twine. Take care, in placing the two parts of the cap together, to make that part which begins every round at the same place in both, as a small defect in the pattern is inevitable, and must be covered by the tassel. Draw the string of the tassel through the centre of the crown, and fasten it in its place. The cap may be lined with scarlet sarsnet.



LOUNGING CAP, IN CROCHET.—(*See page* 15.)

EMBROIDERED NOTE-BOOK, OR CIGAR-CASE.

MATERIALS.—A piece of the finest kid leather, eight inches by twelve. The colour should be a dark stone; with fine *ombre* embroidery silks, blue and yellow green; four or five shades of pink, a needleful of each of which will suffice, and the same quantity of yellow.

Embroidery on leather is done in the same manner as every other kind of coloured embroidery; but as the leather is apt to give way when the stitches are very close to each other, it should be lined with fine linen before being stretched in the frame. As the term *ombré* may be new to some of our readers, we may remark that it is the *proper* name for those silks which are shaded in various tints of the same colour. Chiné silks are those shaded in various tints of *different* colours. The same observation applies to shaded wools.

The design is to be marked on the leather, in the same manner as in other embroidery. It consists of a spray of the Mophilla, and forget-me-nots in the centre, with a delicate sprig of rosebuds and leaves in each corner, so arranged that they nearly form a wreath. As the engraving is given the full size, the pattern may be traced from it. The leaves are worked in the usual long embroidery stitch, from the centre vein of each leaf to the edge, where the outline must be very clear and exact. The leaves being so small, the centre vein only is indicated in the work; it is done in half polka stitch; the stems are worked in the same. In the very small leaves, and the petals of rosebuds, no veining is made.

It requires a little tact properly to use the *ombre* silks. It will not do, for instance, to begin a leaf just at the end of the light part of a needleful of silk, as that would make the point and upper part of the leaf the darkest—a shading never seen in nature. Neither should the lower side of a leaf be the lightest. This must be avoided by beginning the lower side with the darkest part of the needleful of silk; and as this needleful may extend from the darkest to the medium tint, or from the medium to the very lightest (with any gradation between), it will be easy to work half a dozen leaves, all differing in some degree from the others, some being extremely dark, and others very light. The veinings should contrast slightly with the leaves; a very dark leaf may have a lighter vein, and *vice-versâ*.

The observations we have made about shading the leaves may be applied also to the flowers: the lowest petals should be the darkest; the buds of the centre flowers must be of the darkest hue; the forget-me-nots at the top of the spray should be light; each rosebud should be of one shade, and all should differ as much as possible.

The lines in the engraving indicate the direction of the stitches in various parts, and the tint shows the degree of light which will have the best effect. The eyes of the flowers are worked in French knots with the yellow silk. There are six of these knots in the centres of the flowers, and one in each of the forget-me-nots.

STITCHES USED.

The French Knot.—This stitch is formed by drawing the needle through at the exact place where the spot is to be made; then, while holding the silk with the left hand, about two inches from the work, twisting the point of the needle twice round it, close to the embroidery. Again insert the needle in the same place you drew it out; and when the thread is pulled through tightly, the knot will be found complete.

Half-Polka Stitch.—A succession of stitches, of which the second is taken half-way down the side of the first, and half-way beyond it. The next being worked in the same way, two threads are always side by side.



EMBROIDERED NOTE BOOK.

Embroidery Stitch.—In this the stitches are parallel, and either short or long, as the pattern may require. Sometimes they are *radiated*, diverging from the same point, or inner side of a circle but they never cross over each other; the object being to present as smooth a surface as possible. *(See diagrams.)*

In future articles on coloured embroidery we shall refer the reader to these instructions.

Both sides of the note-book are to be worked. It should be mounted by an ornamental bookbinder. The pockets are made of leather, like the cover, lined with rich watered silk.



EMBROIDERY STITCHES FOR NOTE BOOK.

LOCAL AND DOMESTIC SCENES.

THE WOODEN LEG.

Art has achieved some of its most popular works by founding them upon homely, simple, and pathetic subjects. In poetry, the "Soldier's Dream," the "Soldier's Return, and the "Soldier's Death," have been immortalised. These subjects have been made equally famous by the sister art of painting. "The Wooden Leg" has become the theme of several well-known productions; and not only in England, but on the Continent, painting, music, verse, and historical narrative, have united in its celebration. We present our readers with a well-finished engraving, from a beautiful drawing by Karl Girardet, for the incident of "The Wooden Leg" is, unfortunately, but too common, and "comes home to the businesses and bosoms" of people of every country.—A young soldier, returning alone from the theatre of war to his native village, and to the rustic scenes of his childhood, marches



painfully and slowly along the road indicated to him in his description of route. Fastened to the little havresac at his back, is the round tin case containing that document, and probably another—the certificate of his discharge. He is "invalided" by his country, for he has been disabled for the remainder of his days while engaged in its service. He marches on resolutely, but not, as of old, with activity or without pain, for you see him now with a wooden leg, which strikes with monotonous sound against the pebbly road.

"The *people*," said M. Kossuth, "are always just, always good;" and for that reason the song or the painting that is based upon some honest feeling, that expresses some imperishable principle, never appeals in vain to the sound, unvitiated sensibilities of the mass.

The soldier before us is young, but his features do not express youth; there is a certain austerity and sadness on them. The cheeks are hollow; the forehead, dark with the fierce suns and inclement seasons he has endured, is marked with premature wrinkles; his eyes, surrounded by a sunken discoloured ring, have that look of mournful patience which is left on the face of one who has had to endure much, and has endured it well.

He arrives at a village, the church of which had been for some time visible above the trees. All at once, at a turn of the road, the sound of the clarionet is borne along the breeze to his ears; and a little farther on, through an opening in the green shades, he beholds the villagers dancing in one of those rustic balls of which gaiety and cheerfulness are the life.

Mounted on two empty casks, with a plank across them for a platform, the minstrels were pouring forth their vehement music; while the couples whirled around through the aerial lace-work of light and shadow formed by the rays of the sun and the foliage through which they penetrated.

The soldier halts abruptly; and, his back leaning against a paling, his left hand resting on the top of his walking-stick, and his right half open, hanging listless, he contemplates the scene with mute emotion. A thousand memories doubtless came thronging to his heart. He beheld, in the mind's eye, his own village; and he thought of the time when he had led the dance upon the green. No one better knew how to keep the time and measure of the music; none had a lighter foot, or a merrier eye, or a readier and wittier tongue. No one's heart was in those days more joyous than his. The young girls all liked him the best for a partner. Since then, only very few years had passed; and what a change! The merry dancer of other times was returning home, bent by fatigue, mutilated by war, not to be recognised by the eyes of his former companions, and hardly, perhaps, by any eyes except those of a mother. A horseman, who was passing by this poor disabled soldier—once a horseman, too—paused at this scene, which he understood at a glance. He waited till the soldier should resume his march. But the dancing continued, and the soldier continued to gaze. The stranger went forwards, passing close to the poor fellow, and the sound of the horse's hoofs did not rouse him, or make him look up; and, casting a furtive glance, the stranger saw two tears flowing silently down the hollow cheeks of the wayfarer.

In every point of view, public and private—in what regards the community as well as what regards the individual—*war* is an evil and a curse. Nor is the *recruiting* system less so, whether as carried out in France or in England. In France there is the Conscription, by means of which every one is obliged to serve, on whom the lot falls, according to the impartial award of chance. From the prince to the peasant, every one, whose health or whose organisation does not present impediments, is obliged to run the risk of this lottery; and whoever draws the fatal billet or number from the urn, is then forced either to take the uniform for five or seven years, or to find a fit and proper substitute. This, when effected, is generally by means of money. A needy young man is found who, for a price varying from twelve pounds upwards, is ready to sell his personal freedom, and to adopt killing according to rules as his profession, for the term of years specified; and on receiving his money, he relieves the payer of the unfortunate billet, and takes it himself. This system of recruiting is one to which all are equally liable, and a system in which no one enters the service without knowing what he is doing, and what he has to expect. The operation acts, so far, with a sort of general impartiality in its injury; it takes place in the face of day, and according to long-established and intelligible rules.

In England, no man is forced to become a soldier by law. But the army must be kept up to its desired footing, by some means or other; and hence springs one of the greatest disgraces which the social arrangements of a civilised country ever embodied within them. The recruiting-sergeant, when short of volunteers, resorts to the persuasions, or rather illusions, of pots of beer and measures of spirits. It is a serious matter to choose one's calling for life; it is a matter which ought to be decided with the eyes open, with judgment, caution, and careful consideration. It is generally decided in a state of incapable drunkenness, as far as regards our soldiers. They are taken to the pot-house; "a thief is put into their mouths to steal their brains;" a shilling is slipped into their hands, on which, at the time, they are as likely to walk as on their feet; and, lo! they are soldiers, if not for life, yet for a long series of years.

As the case actually stands, it is notorious that, in nine cases out of ten, before the recruiting-sergeant makes a *soldier* of the Englishman, he first makes a *beast* of him. But take it at its best, and remove all its incidental abuses, how sad a profession is that of the fighting-man—or, rather, how deplorable are those absurd passions which have given a sort of *quasi* necessity to the existence of such a profession! The popular little song has sense and sentiment in it as well as humour:—

> "If I were Queen of England,
> Or, still better, Pope of Rome,
> I'd have no fighting men abroad,
> Nor weeping maids at home."

WORKSHOPS, MANUFACTORIES, AND LABORATORIES.

A VISIT TO THE GUTTA PERCHA WORKS.

We live in eventful times; and every day brings to light some new discovery in science and the arts, or some special application of hitherto known but unappreciated agents;—here, a flash of the electric spark conveys intelligence from point to point, over mountains, and through the very sea itself; there, the discovery of a new law in nature robs romance of half its charms, and explains, in part, the dreamy superstitions of our ancestors; everywhere the mind of man is active and awake, and ready to receive new impressions. Indeed, one of the most remarkable characteristics of the age in which we live is—not the obstinate adherence to old customs which so eminently distinguished our immediate predecessors—not a firm disbelief in the powers of novel agencies—but an inquiring spirit, which, in some cases, amounts almost to boundless credulity.

Within the memory of living men, steam and gaslight, electricity and galvanism, photography and mesmerism, were unknown agencies to the great mass of the people; and it is only within the last ten years that the substance called "Gutta Percha" has become an useful appliance in domestic life.

We purpose, aided by the pencil of the artist, to record briefly the history and uses of this curious vegetable gum. Let us glance at the

GUTTA PERCHA IN ITS NATIVE WOODS.

Like photography and the new planet, this product seems to have had more than one discoverer—Dr. Montgomerie, assistant-surgeon to the Presidency at Singapore, and Mr. Thomas Lobb, botanical agent to the Messrs. Veitch, the well-known florists of Exeter, each claiming the discovery as his own, though each was miles distant from, and acting independently of, the other. Priority of discovery, however, seems by common assent to be given to the first-named gentleman. The home of the gutta percha tree is

in the islands of the Indian Archipelago, where there is reason to believe that it is indigenous. In the year 1824 Dr. Montgomerie was out in the woods at Singapore, when he observed, in the hands of a *parang*, or native woodsman, a hatchet, the handle of which was composed of a strange substance. "I questioned the workman, in whose possession I found it," says the Doctor, in his account to the Society of Arts, "and heard that the material of which it was formed could be moulded into any form by dipping it into hot water, when it became as plastic as clay, and when cold regaining its original hardness and rigidity." Subsequent inquiry led to the fact that gutta percha, like caoutchouc, or india-rubber, is the sap of a species of sapotaceous forest tree, thousands of which abound in the dense forests of the Malay peninsula. Our engraving will convey a good idea of its noble proportions.

Of course, the Doctor was not long in disseminating his knowledge of so remarkable a substance. He speedily procured specimens of the tree and its product in various states of preparation, and forwarded them to the Society of Arts in London. As soon as it arrived in this country, its peculiar properties were rigidly inquired into; and, its value in manufactures being speedily ascertained, the gold medal of the Society was awarded to the Doctor as the first discoverer.

This substance derives its name, not from the scientific world —though it is curious that the first half of the term is the Latin word for *drop*, whence it might be concluded that gutta percha meant the *droppings* of the percha tree—but from the native Malays. It is pronounced *pertsha*, not *perka*.

Dr. Montgomerie had several opportunities of becoming acquainted with the method by which the gutta or sap was obtained from the tree. The fruit yields a "concrete and edible oil, which is used by the natives with their food;" while the sap circulates between the bark and wood of the tree in vessels whose course is sufficiently well marked by black longitudinal marks. At first the natives were in the habit, when they required a supply, of felling the tree; but experience soon taught them that the milky juice might be collected by cutting notches here and there in the trunk, and that in this way the life of the tree might be saved for future "tappings." The sap coagulates in a few minutes after it is collected; but before the crude gum becomes quite hard, it is kneaded by hand into compact oblong masses from seven to twelve inches in length, by four or five in thickness. This part of the work is mostly performed by women, as seen in the engraving. The blocks made up for exportation, however, are not always of uniform size and appearance, the fancy of the rude barbarian sometimes giving them strange forms—such as that of a bird with red berries for eyes, images of ships, quadrupeds, or the "human face divine." The gum is always sold by weight—a fact which is taken advantage of by the crafty savage, who, in humble imitation of more clever adulterators, sometimes introduces a stone or heavy substance into the interior of the mass. As it would entail a serious loss of time on the merchant if he were to cut each block at the port of shipment, it often happens that, on the substance reaching this country, it is found to conceal stones or rubbish; and then, woe to the purse and the cutting-knives of the purchasers! Besides this, however, the blocks often contain a vast amount of unavailable material in the shape of bark, dirt, leaves, and so on, which become accidentally incorporated with the gum.

From the examination of the specimen sent over by Dr. Montgomerie, it became apparent that a large trade in the article would speedily take place; and in a few months the jungles of the Johore Archipelago, the scene of the first gatherings, were explored by Englishmen, Chinese, and Malays, in search of the gum-exuding tree. Their efforts were actively seconded by the natives; and in a short time it was discovered that the supply, of which some doubts had at first been entertained, was almost inexhaustible. It is singular, remarks an acute observer, that, although the Portuguese, Dutch, and English, had, one or other of them, retained possession of the islands on which the trees grow for more than nine centuries and a half, it should have remained for an Englishman to discover their valuable properties at so late a date as 1843.

The rise of this new trade gave a great impulse to the activity of the Oriental islanders; and the value of the gum becoming fully known, eager search was made from island to island, and among the forests of the Archipelago; and large profits were made by the sarmingongs, or chiefs, of the aboriginal tribes, who exacted from the gum-hunters a royalty on all they found. Sufficient profit, however, was left, even after this deduction, to stimulate the cupidity of the natives, and the port of Singapore was speedily supplied with the article in great quantities. At present, above two millions of pounds are exported into this country in the many-shaped masses alluded to. We will now inquire into

THE NATURE AND APPLICATIONS OF GUTTA PERCHA.

At the present time the chief supplies of the article come from Singapore, though vast numbers of the tree—the wood of which, being of a soft spongy nature, is of little commercial value—are found in Borneo, Java, Sumatra, and Penang. In its nature it differs from indian-rubber chiefly in its superior density and toughness. Though both substances are somewhat alike in appearance and manner of application, the absence of oxygen in indian-rubber may account for its greater elasticity. The chemical constituents of gutta percha, as ascertained by Dr. Maclaghan, are—

Carbon	86·36
Hydrogen	12·15
Oxygen	1·49
	100

While those of indian-rubber are—

Carbon	87·2
Hydrogen	12·8
	100

Exposed to a temperature of 248 degrees, gutta percha melts; and in cooling remains in a semi-fluid adhesive state—partially decomposed, in fact; and when set on fire it burns very readily, with a dense smoke. At a temperature of about 200 degrees it becomes soft and ductile, though without stickiness, and can be put into the shape it is intended to retain when cool. Its specific is ·975, that of water being 1·000. It is repellant of, and completely unaffected by, any description of *cold* water; and of heat and electricity it is a non-conductor. It is proof against alkalies and acids, being only affected by sulphuric or nitric acid in a highly concentrated state; while the most powerful ascetic, hydrofluoric, or muriatic acids, or chlorine, have no effect whatever on its structure or capabilities. Of its power to resist frost, sufficient proof exists in the number of boot and shoe-soles manufactured from it; and of its acoustic properties we shall have more to say.

The capabilities of the resin were tested as soon as the specimen forwarded by Dr. Montgomerie reached London, and a kind of historical interest is attached to this sample from the fact that, from this humble beginning, a large branch of manufacture has arisen which now employs some thousands of workmen. Several ingenious tests were applied to the specimens, and it was soon proved, by Messrs. Whishaw and Hancock, that it was applicable to a vast number of purposes; and from it were made tubing, lathe-bands, and impressions of medals—all of which were shown at the late Exhibition in Hyde Park. If further proofs of its value were necessary, we need only refer to the experiments made by these gentlemen; one of which consisted in the softening a mass of the material in hot water, pressing it round a soda-water bottle, hardening it in cold water, pressing it out into a thin sheet, and then, by the application of heat, again rolling up the gum into the form at first assumed. From the patents taken out by Messrs. Hancock, arose the manufacturing and trading firm known as the "Gutta Percha Company."

We will now examine

THE MANUFACTURE OF GUTTA PERCHA.

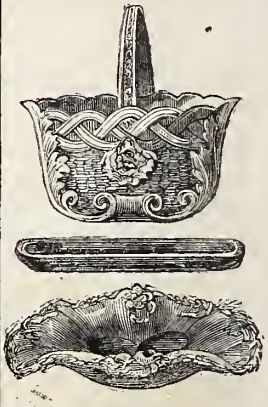
Perhaps few of our readers think what a vast amount of capita and labour are constantly working hand in hand in the byways of this great city. We pass through the main streets, and are acquainted with the general complexion of the thoroughfares right and left, but, without our business lead us directly into the vortex of industry, we bestow little thought upon aught that comes not immediately before our eyes. A few steps out of the main line in one direction take us into the midst of the tan-yards of Bermondsey; a hundred yards or so from Finsbury-square, and we are in a new world among the weavers of rich silken and velvet stuffs; through a street or two from that same square, and we are deafened by the clang of hammers and the din of labour; in every direction, did we care to search, we should





GUTTA PERCHA IN ITS NATIVE WOODS.



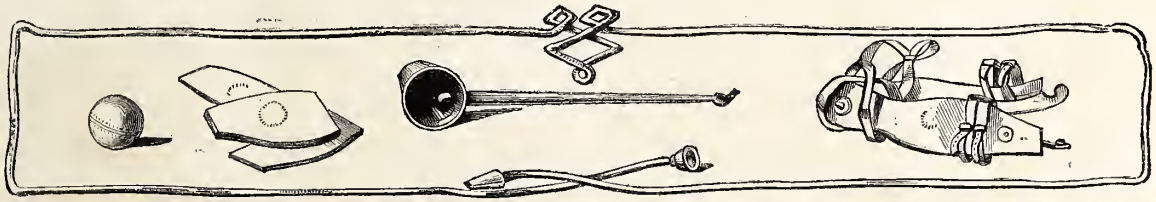




GUTTA PERCHA—BOILING ROOM AND "TEASER.



GUTTA PERCHA—ROLLING MACHINE AND TANK.





GUTTA PERCHA—SHAPING AND CUTTING ROOM.

find factories where hundreds of men earn the "daily bread" for which, it is to be hoped, they nightly pray. So it is with the spot in which the Gutta Percha Company have their factory. A few yards out of the City-road, near the canal basin, and we find ourselves in a strange neighbourhood, where coals, and lime, and culm, and building materials, are being constantly unloaded from queer-shaped vessels, and where numerous manufactures are being carried on. In this "Wharf-road" are the works we are now visiting.

We enter a modest-looking doorway beside a pair of folding gates, on which the words "Gutta Percha Company" are painted, and we become speedily aware that a branch of manufacture of which we hitherto knew next to nothing is being carried on within. Sight and smell—a smell something like a tan-yard, something like old cheese, something like half-dried clothes in a laundry, something like gas tar—an odour we soon become accustomed to—informs us that we may expect to witness a new sight. And we are not mistaken; for the manufacture of gutta percha has necessitated the invention and use of novel machines, strange processes, and odd-looking tools. Every fresh application of the material—whether it be the production of merely useful or highly ornamental designs, the imitation of the grain of wood, the close texture of papier-maché, or the endeavour to make this Eastern gum a substitute for leather—has obliged the invention of tools not hitherto thought of, and the use of appliances without the range of the ordinary workman. As soon as we are fairly in the yard of the works, we look around and read the history of the manufacture all about us. Here are piled great heaps of the raw material, in all imaginable strange shapes; there, and on every side, are buildings erected especially for the processes to be carried on inside—store-rooms, engine-houses, workshops, a quay for unshipping the gum, *cum multis aliis*.

Let us enter the building nearest us, and, by the help of Mr. Statham, the intelligent manager, and "our own artist," we will endeavour to explain what we witness. The blocks of gutta percha required for use are taken from this heap to the cutting machine. This is a large solid vertical disc of iron, making about two hundred revolutions per minute. The raw material is cut into thin slices by several sharp knives, like those in a carpenter's plane. The block of gutta percha, being brought to the edge of a sloping iron table, is rapidly caught up by the knives, and literally reduced to shavings, which fall into a receptacle beneath. The cutting apparatus, as well as the other machines on the premises, is put in motion through the agency of two fifty-horse power engines, the boilers of which are constructed on a novel plan, by which eleven pounds of water are evaporated to one pound of fuel. The furnaces, moreover, consume their own smoke. A reference to the engraving will convey a good idea of the appearance of the cutting machine; and we may remark, in passing, that the stone and other adulterative material which the cupidity of the Malay gatherers has added to the mass, is discovered by this process, often very much to the injury of the cutters.

Reduced to shavings, the gutta percha must next be perfectly cleansed of its impurities. This is no easy matter, but patience and hot water are certain at last to effect the desired object. The shavings are thrown into great tanks and boiled, and then, the greater part of the rubbish having fallen to the bottom, the gum is collected into one mass and carried to what is called the "teaser"—a sort of large circular box, containing a cylinder or drum, covered entirely with rows of bent, jagged teeth. Revolving at a great rate (about 800 turns in a minute), the "teaser" quickly tears the mass into shreds and tatters, which fall into a vat of water beneath. The true gutta percha, being lighter than water, floats on the surface, while the impurities sink to the bottom; and thus, being perfectly cleansed of all impurities, is ready, crisp and new-looking, for the succeeding process. Another boiling brings the material again into a soft, compact mass, which is "kneaded" or "masticated" in heated iron cylinders, in which revolving drums so completely turn and twist the pasty gum as to bring it into a perfectly homogeneous state, without a particle of water in its composition.

In this state the gutta percha may be considered ready for manufacture, and the subsequent processes are employed either in making it up in sheets or tubes. If required for after use in the production of ornamental articles, the kneaded mass is carried to the rolling machine. This apparatus is similar to that employed in paper-mills, the gutta percha passing on an endless band through steel cylinders placed at the requisite distances apart, according to the thickness of the sheet required. By a simple adjustment of the cylinders, it can be made to produce with equal ease the stoutest driving-band or the thinnest tissue so much used and appreciated by surgeons as a substitute for oiled silk, hydropathic bandages, &c. During the passage of the sheet through the machine, it has become sufficiently cooled to form a solid consistent body; or if the substance of the sheet required be too thick to allow it to cool in the ordinary manner, it is blown upon as it passes on to the drum at the end by a series of fans, like those in a winnowing machine. When the material is required to be in strips, a very ingenious construction of knives takes the sheet just before quitting the machine, and cuts it into longitudinal bands of the required width, which are, as before, carried forward on to the drum.

In the production of tubing, a different but highly ingenious and simple process takes place. "A mass of the softened material is forced by a piston through a steel cylinder, terminating in a mould, which consists of a solid circular piece of metal set within an iron tube, the space between the two being the thickness required;"—in fact, this is a very curious modification of the wire-drawing process. The gutta percha, after having left the mould in a tubular form, is received into a canal of water about fifty feet in length. The office of the water is to prevent the tube from contracting or collapsing; the pressure being equal both within and without, it is thus preserved in the required shape, and is afterwards dried and hardened by exposure to the air. As the tube leaves the water it is wound off at the other end, and the "feeding cylinder" is so contrived that no pause occurs in the transmission of the material. By this means a pipe of upwards of 1,000 feet in length has been manufactured in one piece.

From the sheeting and tubing thus prepared an infinite variety of articles are composed. The numerous workshops are crowded with men and boys engaged in various operations. In the cutting and stamping room the paper-cutting machine, invented by Mr. Wilson, is brought into extensive operation, moulds of every description being used to produce the different articles; and so great is the demand for new combinations of gutta percha, that scarcely a week passes without some addition to the stock of curious contrivances—some unique pattern, some elegant design, or some useful appliance. As we said before, the novelty of the manufacture has introduced a vast number of curious-looking tools, &c.; but it may be affirmed that the principal and indispensable necessaries are, boiling water, the knife, the mould, the press, and the plastic hand of the workman. The operation of the cutting machine is as instantaneous as it is curious. If shoe-soles are required, the band is applied to the machine, and a dozen pieces of one shape is the result; if line or string is wanted, a series of sharp knives press down on the material, and the necessary quantity is ready for the workman's hand to roll and polish; and so of every article in which a distinct outline is necessary.

The next process is the moulding, or stamping. The sheets are cut into pieces, and each piece is warmed sufficiently to take the impress of the die. These moulds, many of which display great ingenuity and originality, are all made on the premises, and constitute a distinct branch of the company's operations. We come now to speak of

THE USES OF GUTTA PERCHA.

The most important use to which this material has been applied is undoubtedly that of tubing. The history of water-carrying is the history of civilisation. First the spring at which the wayfarer stooped to drink; then the rude passage formed of trunks of trees laid end to end; then the aqueduct, carried o'er hill and valley to imperial Rome; then the gay, splashing fountain, with its retinue of water-carriers; lastly, the leaden pipe, which does its office stealthily beneath the earth, and bears the stream from distant country places into our very homes. But even the reign of the leaden pipe is doomed, and must give way in turn to gutta percha. Even while we write, the system of supply for large cities is undergoing change, and medical men are beginning to perceive that the conveyance of water in leaden pipes is hurtful to the health. "Many serious and alarming disorders," says Dr.

Thomas Smith, "such as mania, epilepsy, sudden death, nervous affections, paralysis, consumption, hydrocephalus, heart disease, &c., owe their origin in some instances, their intractable character in others, to the gradual and continuous infinitessimal doses of lead, copper, &c., introduced into the system through the channel of our daily drink." For all sanitary purposes the gutta percha tubing is admirably adapted, as it possesses strength, purity, and is entirely unaffected by frost. It is accordingly extensively used for pump-barrels, ship-pumps, feed-pipes for locomotive engines, syphons for mines, suction-pipes for fire, garden, and washing engines; and, being unaffected by acids, is available for bleaching and all chemical purposes. It may be united to a metal pipe without difficulty; is unhurt by gas or chlorine; and, as for strength, it has been found to resist a pressure of 200 lbs. to the square inch. At New York a gutta percha pipe of 1,000 feet in length, and of but two and a-half inches calibre, has been laid down for conveying the Croton water from Blackwell's Island. Its durability has been proved by the fact of its having lain in damp ground quite uninjured for two years, and its ductility is seen in the fact that it may be bent, twisted, or coiled in all directions without injury. A curious and valuable use has been made of the gutta percha tube in illuminating buildings. One end being attached to a gas-pipe, and the rest coiled round a cylinder, the light may be carried about by hand to any part of the building, the tube being coiled and uncoiled at pleasure.

Formed into carboys, flasks, funnels, bowls, scoops for ladles, linings for cisterns, battery-cells, buckets, troughs, or syphons, the Indian gum answers its purpose equally well, and is found far more strong and economical than any material hitherto tried.

In acoustics the gutta percha tubing has been found of admirable service; and, whether employed as an ear-trumpet for the deaf, as a speaking tube in a railway carriage, a domestic telegraph by which messages may be conveyed from one part of the house to another, and whereby the lowest whisper is distinctly heard; a speaking apparatus from the mouth to the lowest depths of mines; or as an appliance whereby a minister may address the deaf among his congregation—it has been found equally certain and unfailing. In various churches and chapels it has been applied to the latter purpose, being conveyed under the flooring from the pulpit to the most distant pews; and in more than one instance it has been attached to the doorway of the medical man, and carried up to his bed-side, so that he is enabled to communicate with the messenger of his patients as readily as if he attended them in person in the cold night air.

For shoe and boot-soles it has been extensively applied, and numerous testimonials speak of its efficacy in resisting damp, and protecting the feet from cold and frost in all situations. As a substitute or addition to leather for these purposes it is undoubtedly of great and important use.

We would willingly speak at length of its services in telegraphic communication; but when we say, as is already known to all our readers, that through its agency the British Channel has been spanned, and Paris, and Berlin, and Brussels have been brought within speaking distance of London; when by a flash of lightning the submarine telegraph conveys intelligence from shore to shore, we think we have sufficiently testified to its usefulness and importance in this respect.

As a decorative and fine art material, gutta percha has been brought into use in an immense variety of ways. In gutta percha are formed all manner of domestic appliances and ornaments—trays of all sorts and sizes; vases, watch-stands, and plates; bouquet-holders, statuettes, brackets, jugs, mugs, inkstands, and clothes-lines; flower-pots and stands, paper-weights, medallions, cornices, doors, mouldings, picture and glass frames, drinking cups, fishing nets, and portmanteaus; skates, policemen's batons, and boats; oil-cans, washing basins, and whips; stethoscopes, splints for dislocations, and curtain-rings; stuffing for horses' feet, mill-bands, and stop-cocks; cutting boards, cabmen's hats, and traces; life preservers, bottling boots, and seals; powder-flasks, air-guns, and book-covers; sponge-bags, galvanic batteries, and bandages for broken limbs;—when for all these, and thousands of other purposes, it has been found of eminent utility, enough has been said to commend it to the reader's attention. It may be mentioned, in conclusion, that many imitations and falsifications of the company's patent have been attempted, to obviate which the name and offices of the patentees are now stamped on all articles issuing from their establishment. We could go on, but space forbids. To the stranger in London, and the seeker after novelty in manufactures, an hour or two cannot be more profitably spent than in visiting the works of the Gutta Percha Company. Much that is useful, much that is curious, and much that is beautiful, awaits his inspection.

THE WORKS OF THE GREAT MASTERS.

THE PEDLAR.

The Pedlar—the itinerant hawker of various wares—has for centuries been known as the type of a certain class of considerable importance in our commercial community. Many a wife, and many a maiden too, looks forward to the periodical visit of the "Packman" with almost as much eagerness as they wait the arrival of the postman who is to bring them news of a husband or a lover, "over the hills," it may be over the seas, "and far away." The visit of the Packman is welcomed, and his stores are curiously examined and readily purchased. The result is a supply of useful articles to those who live at a distance from towns, and a gradual acquisition of wealth to the travelling merchant; so that, by degrees, he is enabled to relieve his back of its wonted burden, and to deposit his wares in a neat covered cart, or chaise, till, his business still increasing, he starts a handsome four-wheeled van, with a pair of stout, good-looking horses; he mounts a snug seat in front with an assistant or driver seated at his side, or placed as a guard in a snug nook at the back of his vehicle.

In new and nascent countries especially does the Pedlar occupy a most important station. Welcome indeed is his distant form to the colonist and his family, as they are toiling painfully to transform into a garden the fertile, though hitherto neglected lands, where their new home is chosen and planted. In the United States of America, for example—those States which have now become like one vast heart or workshop—there were for a long series of years hardly any purveyors of useful manufactures save the hawkers. But the Pedlar's calling was not confined to the selling of his wares. Journeying from plantation to plantation, or from settlement to settlement, he was the bearer, and often the sole bearer, of public news, and the medium through which letters and private communications were conveyed from friends and family connections, scattered through widely separated districts. His pack often became a post-bag and a shop, and both were ambulatory. In the colonies to which we have referred, Cooper's "Spy" was in the substance of the character, and, apart from the fictitious and romantic additions and ornaments which pertain to a novel, but a type—and a very interesting type—of the transatlantic hawker of those times. The Pedlar was the pioneer of trade, and esteemed himself the equal of those whom he visited, because he was aware that he contributed their necessities and comforts. Being generally in good circumstances, he was welcome whenever he appeared, even amongst those who did not want to buy. In the majority of cases he found the private house a gratuitous hotel, where he sat at table with the family on the footing of a friendly guest.

The formation of regular towns, with well-stocked "stores"—good roads—and especially the introduction of railways and steam-carriages, by almost annihilating distance, have rendered the Pedlar's visits less necessary, and of course less frequent. But in the back settlements may still be seen the "'minished" heirs of this once prosperous and important calling. They consist now, for the most part, of sellers of books intended for the libraries of distant settlers. On the road, the American Pedlar is commonly observed to beguile his time by the perusal of some of these works which form his stock-in-trade; and he can recite from memory some of the finest passages of our English writers, as well as the literary and religious productions of the West. On the Continent,

many religious societies have availed themselves of the services of the Pedlar, or *Colporteur*, for the purpose of disseminating their principles through the medium of tracts and other publications, which he is instructed to sell, or to bestow gratuitously, as circumstances may dictate.

But such as the Pedlar, or Hawker, is, in various parts of the United Kingdom, he is depicted in our engraving from the well-known picture of the celebrated DAVID WILKIE. That close observer and admirable delineator of nature, has described a scene familiar to our rural population, and not unfrequently enacted in suburban districts.

The Pedlar is seated, and has successively unrolled his most seductive wares. At length, a flowered chintz dazzles the eyes and bewitches the heads of the "womankind." The aunt, safe from detection in the background, lifts her hands in ecstasy. A neighbour, kneeling down, holds the chintz between the light and her eyes, to ascertain its tissue and firmness. The "old woman" (the mother), who, "spectacles on nose," prosecutes the inspection, is evidently discussing the price. She is asking for an abatement; and there is no mistaking the gesture and general manner of the Pedlar: "*He really cannot; he would if he could.*" The daughter says nothing, but, holding the article with both hands, she turns round towards her husband; and her face is like a note of interrogation. The child, standing behind the father's chair has an uneasy and entreating air the little rogue is plainly in a story with his mother—he is her accomplice. The head of the family still hesitates—and still smokes; he is half on a smile, but wants, if he can, to grumble. His hand, thrust into the pocket of his jacket, appears to fumble with the purse, which he must empty. Yes, he must empty it; and he will.



THE PEDLAR.—AFTER THE CELEBRATED PICTURE BY WILKIE.

But why need we particularise? Does not this beautiful engraving from a charming picture tell its own tale?

ARCHITECTURE.

DOVER CASTLE.



Most of our readers, we presume, have heard of Dover Castle, and many of them, we doubt not, in these locomotive times, have wandered within its walls, and gazed on its ruins hoar and grey. Under these circumstances, it is desirable we should attempt briefly to tell its story.

Like most castles, that of Dover has arrived at a ripe old age. Its origin lies far back in the annals of our land. Common tradition supposes that Julius Cæsar was the builder of the castle. The more probable supposition, we think, is, that it was reared by Plautius, a general sent with an army into Britain by the Emperor Claudius. Our old topographical writers, however, are strongly in favour of Julius Cæsar's claim to having built it. Kilburne says there was a tower here called Cæsar's Tower, and he further states there were to be seen there great pipes and casks, bound with iron hoops, in which was liquor, supposed to be wine, which by long lying had become as thick as treacle, and would cleave

like birdlime; salt congealed together as hard as stone; cross and long-bows, and arrows to which brass was fastened instead of feathers; and they were of such size as not fit for the use of men of that or any later ages. These the inhabitants showed as having belonged to Cæsar, and the wine and salt as part of the provisions he had brought with him hither. Modern writers hint that the wine would not have kept so long. Camden relates that he was shown these arrows, which he thinks were such as the Romans used to shoot out of their engines, which were like large cross-bows. Be this, however, as it may, Dover Castle undoubtedly may lay claim to great antiquity. Some part of it clearly is of Roman origin. The part of the country in which it was situated became a Roman province, and here, on the nearest point to the Continent, where it would command the harbour in case of a reinforcement of shipping, or secure a retreat if necessary, the Romans would necessarily erect a castle.

Dover Castle stands on a lofty eminence, about half-a-mile northward from the town, from which it is approached by a bold ascent. It occupies a site of thirty acres of land, and consists at the present time of two courts, defended by wide ditches, and communicating with the towers within by means of subterraneous passages. The lower court, excepting on the side next the sea, is surrounded by an irregular wall, called the curtain, and flanked at unequal distances by numerous towers, of different shapes and ages. During the lapse of years they have all undergone considerable alterations. That which Godwin erected in the time of Canute has long been removed, nor was its site known for ages, till a few years back, in making a new road, its site was discovered. In Godwin's time the castle was deemed almost impregnable. When Harold, Godwin's second son, who had succeeded his father in the government of the castle, made his expedition into Normandy to Duke William, to induce him to restore his nephew Haeun, the Duke promised it if Harold would give him his assistance in gaining the crown of England after King Edward's death, and, among other conditions, deliver to him the Castle of Dover with the well in it. And when the disastrous battle in which Harold was slain was fought, William, no longer mere Duke, but rejoicing Conqueror, marched directly to Dover to take possession of the castle, to which many had fled for refuge. But we must return to our description. Chelham or Caldecot Tower is the third from the edge of the cliff, and at the back of it was a postern upon the wall, which joined the Roman and Saxon works, with a subterraneous passage into the castle, through which Stephen Pinecster is said to have led the reinforcement that enabled Hubert de Burgh successfully to withstand the Dauphin in the reign of John. In the front of this building is a house for an officer called the Bodar of the Castle, under the Lord-Warden of the Cinque Ports, who has power to take within his jurisdiction and custody in this tower crown and other debtors. Fiennes or Newgate Tower has been used ever since the Conquest as the governor's apartments; it stands upon the site of a more ancient tower, said to have been built after a design by Gundulph, Bishop of Rochester, who was employed by the Conqueror in making designs for castles and superintending their erection. Crevignor, Craville, or Earl of Norfolk's Tower, is opposite the north entrance of the quadrangle of the keep, and near it is a subterraneous passage leading to a vault, which is sufficiently capacious to contain a large garrison, and is protected by a draw-bridge, moat, and round tower. The tower in the ditch and the adjoining subterraneous works are supposed to have been constructed in the reign of John. Fitzwilliam or St. John's Tower is the next in order. It was named after Adam Fitzwilliam, who accompanied the Conqueror to England, and received from that monarch the scarf from off his own arm, at the battle of Hastings, as a reward for his distinguished bravery. Avianche's or Maunsel's Tower stands in an angle formed by the curtain wall, and is one of the noblest relics of the Norman towers. The first floor was a kind of vault, arched with stone, and open in front; and in the wall, which is very thick, is a gallery or passage, ascended by stone steps, where archers could range one above another, and, through small apertures, command the ditch on either side, as also the approaches to it, from the curtain. Through the gallery is an ascent to the platform over the top of the vault, partly surrounded by a wall, and having a spiral stone staircase which leads to the top of the tower. Near the entrance denominated the Palace Gate is a stately fabric, in Edward the Fourth's time called Suffolk Tower, from De la Pole, Duke of Suffolk; adjoining which is the old Arsenal Tower, and farther on were formerly the king's kitchens and other offices. All this side of the castle presents a modern appearance, the back part having been cased over, and the front being hid by barracks erected in 1745. The keep, or Palace Tower, erected by Gundulph, stands near the centre of the court; the entrance, originally on the east, is now on the south side; it opened by a grand portal, now walled up into the state apartments. The staircase has two vestibules, and was guarded at different heights by three strong gates. Ascending by the vestibule on the right hand is a room, apparently designed for the warden of the first gate, and opposite is another, probably the chapel, adorned on every side with beautiful arches, richly embellished. Above this is a third similarly ornamented, and under the chapel and first vestibule is the dungeon, in which have languished many of noble name and deed. In the walls of the keep are galleries, with holes, through which an enemy might be fired at, but so constructed as to protect the defenders. The second floor was intended for the use of the garrison, and the ground-floor for stores. Part of the castle is used as a gaol. In the north angle a well, for ages arched over, has been lately discovered; there are also four other wells, each three hundred and seventy feet deep, within the Saxon lines of defence. The more recent works are batteries mounted with heavy ordnance, casemates in the chalk rock, covered ways, and subterranean passages, with accommodations in them for ten thousand men, light and air being admitted through holes cut in the chalk, and other apertures, extending to the front of the cliff. Near the edge of the cliff is a curious piece of brass ordnance, twenty-four feet in length, cast at Utrecht in 1544, and called Queen Elizabeth's pocket-pistol, it having been presented to her Majesty by the states of Holland; it carries a twelve-pound shot, and it has been affirmed that, if loaded well and kept clean, it would carry a shot to the French shore.

With Dover Castle every Englishman, after all, should have proud historic associations. It was but a partial triumph Cæsar effected there. Tacitus says that he did not conquer Britain, but that he only showed it to the Romans. Horace, calling upon Augustus to win fresh laurels for the Roman arms, speaks of Britain as untouched; and, in a similar spirit, Propertius describes her as unconquered; and, in the same spirit, our national dramatist makes the Queen in "Cymbeline" proudly tell the Roman general:—

> "Remember, sir, my liege,
> The kings, your ancestors, together with
> The natural bravery of your isle, which stands,
> As Neptune's park, ribbed and paled in
> With rocks unscaleable and roaring waters—
> With sands that will not bear your enemies' boats,
> But suck them up to th' topmasts. A kind of conquest
> Cæsar made here; but made not here his brag
> Of *came*, and *saw*, and *overcame;* with shame
> (The first that ever touch'd him) he was carried
> From off our coasts, twice beaten; and his shipping
> (Poor ignorant baubles!) on our terrible seas
> Like egg-shells moved upon their surges—crack'd
> As easily 'gainst our rocks: for joy whereof,
> The famed Cassibelan, who was once at point
> (O gigot fortune!) to master Cæsar's sword,
> Made Lud's town with rejoicing fires bright,
> And Britons strut with courage."

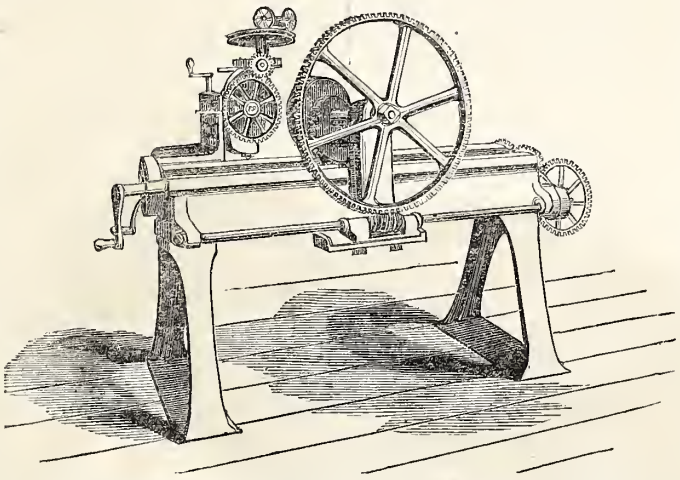
Nor was this mere boasting. On a brave people did Dover Castle look down—brave even when the Roman eagles were borne triumphant along the land, or when on a bloody battle-field the last of the Saxon kings laid cold. And though years have come and gone, and though Roman soldier and Norman baron, in their power and pride, have passed away, a people mightier than they have risen up, with a loftier aim, and a mission more divine.

Still, as of old, bristling with guns and armed men, Dover Castle watches the narrow strait that divides England from France; but there are symptoms that its destiny is accomplished. Other agencies are at work. Beneath the waves that foam around its rocky base runs thought free and swift as the lightning flash; and long be it ere War rudely snaps the bond which Peace and Science have joined to form!

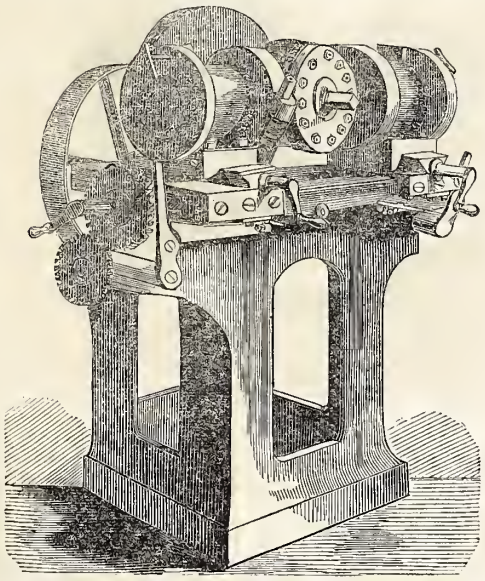
SCIENTIFIC DISCOVERIES, INVENTIONS, AND IMPROVEMENTS.

WHITWORTH'S MICROMETRIC APPARATUS AND MANCHESTER TOOLS.

In the department devoted to machinery in the Great Exhibition there was exhibited by Messrs. Whitworth, of Manchester, a collection of turning, planing, boring, and cutting machines, on a scale of extraordinary magnitude; and near them an instrument on a smaller scale, by which magnitudes so minute as even to elude the microscope have been submitted to mechanical measurement. This admirable instrument is not a mere object of scientific curiosity, but has been applied to purposes of the greatest practical utility, by affording means for the establishing uniform standards of magnitude for taps, axles, and other important component parts of machinery, among which it is as necessary to maintain uniformity as it is to have a uniform language or a uniform system of numeration. By the instrument to which we refer magnitudes are actually estimated which do not exceed the one-millionth part of an inch. Two perfectly plane and smooth metallic surfaces are first formed, partly by friction against each other, and partly by abrasion with a peculiar tool. So plane are the surfaces of metal thus formed, that, when one is laid upon the other, no one part comes into closer contact than another, and there is included between them a stratum of particles of air, which act like infinitely smooth rollers, and



COG-WHEEL CUTTING AND DIVIDING MACHINE.—MESSRS. WHITWORTH AND CO., MANCHESTER.



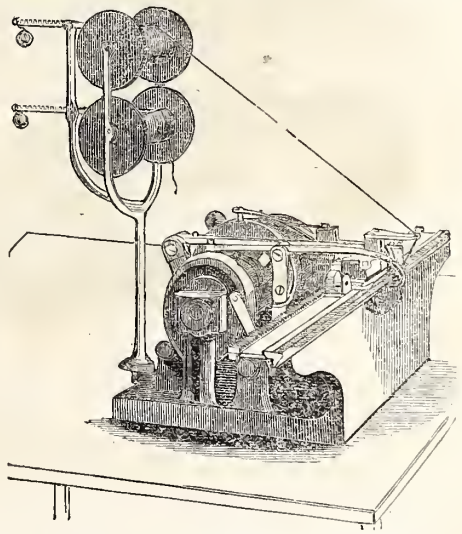
BOLT HEAD AND NUT SHAPING MACHINE.—MESSRS. WHITWORTH AND CO., MANCHESTER.

the surfaces move in contact one with another with a degree of freedom, owing to the lubricity of the air, which must be felt to be conceived. If, however, the surfaces be brought so close together as to exclude the air, they are with great difficulty separated. These surfaces thus accurately formed are used as standards to test other plane surfaces, by means of a metallic bar acted upon by a rather complicated apparatus; and if, from a change of temperature or other cause, this bar suffer a change in its length amounting to the millionth part of an inch, that change is rendered perceptible. By the application of this instrument, standard gauges for axles, taps, and other parts of machinery in which it is desirable to maintain a strict uniformity, are constructed with unerring fidelity.

Our first engraving shows the Self-acting Cog-wheel Cutting Machine; it is what is called the D size, and is used to cut, bevel, spin, and worm wheels to 4ft. 6in. diameters and 9in. in width. It both divides the distances and cuts the cog. It moves horizontally for different diameters of wheels, and is used extensively by the makers of cotton machinery. Messrs. Hibbert and Platt have long since availed themselves of its services.

The Self-acting Bolt Head and Nut Shaping Machine, seen in the engraving, with double cutters to square two objects at a time, is used principally by manufacturers of locomotive and marine engines. It cuts and shapes the hexagon nut. By the old method only one side of the hexagon was formed at a time; by this ingeniously-contrived machine two heads are cut at the same moment, and both sides of each hexagon.

The Patent Knitting Machine, though small—measuring little more than 19in. in length and 12in. in height—is likely to prove extremely useful. It knits one stitch at a time, and produces 420 stitches per minute. It can be worked by either hand or steam power, and one girl can attend four machines. The original idea of a machine to produce knitted work of a similar character to



PATENT KNITTING MACHINE.—MESSRS. WHITWORTH AND CO., MANCHESTER.

that of hand labour, was formed, and a model machine executed in wood, by a Mr. Wild, an Englishman, residing, we believe, in the United States. The present machine is an improvement on the above, executed and patented by the Messrs. Whitworth. The object of the lower bobbin shown in the engraving is to apply an additiona thread for the purpose of strengthening the heel of the stocking

NATURAL HISTORY.

THE APTERYX.

(Recently added to the collection in the Royal Zoological Gardens, Regent's-park.)

The explorations of the last seventy years in Australasia and Polynesia have largely added to our knowledge in that branch of science known as *Natural History*. Animals till then unknown, and whose structure was utterly opposed to all previously-received notions of animal physiology, were discovered in great numbers: such as the kangaroo and ornithoryncus. The former has a pouch for to serve as refuge for its young, in consequence of their being born in a very premature state of development; and the latter is an animal of the genus *mammalia*, with a duck's bill. It was difficult to say to what head in the old system of classification such anomalies as these should be referred. So that it was necessary to extend it vastly, to exercise greater diligence and care in the collection of facts, and to modify many conclusions perhaps too, in many instances, hastily drawn. To the zoologist, therefore, the discovery of the islands in the South Pacific has opened up a new and most interesting field of research: and one of the strangest of the many strange things which here meet us is the *Apteryx*, so called from two Greek words meaning "wingless."

For a long time nothing was known of this singular animal, except what could be learned from some remains brought over by the voyager, Shaw. But, notwithstanding the statements made by him, and the evidence afforded by the bones, &c., which he produced, it was believed by most naturalists for nearly forty years, that no such animal had ever existed, and that the object of Shaw's description was but a penguin or some similar bird, the characteristics of which had been exaggerated or softened down, as suited the purpose in view. At length Lord Derby presented the remains in question to the Zoological Society, by whom they were made the subject of the most careful investigation, and a detailed description published. Scarcely had this been done, before the bodies of five of the birds arrived in London, some of which were preserved, and others dissected. This led to a much clearer knowledge of the species.

Although it is quite true that the Apteryx has no wings, yet there are small members, not half an inch in length, growing out of the spot in which the wings ought to be, if we may use the expression. The feathers are soft and flexible, and furnished with extremely fine beard or hair; so that the animal's covering has at a distance exactly the appearance of coarse fur. These characteristics are quite sufficient to warrant us in referring it to the family of birds known as *Cursores*, or *Runners*, such as the ostrich and cassowary, and perhaps the extinct *dodo*. But the Apteryx differs widely from the general structural type on which all these birds seem in sort to have been modelled. As it is *insectivorous*, or insect-eating, its bill is long and attenuated like that of the curlew, to enable it to root up the eggs of the beetles and caterpillars on which it lives. The eyes are very small, and protected by a contractile member. The head also is very small in proportion to the size of the body, which is that of an ordinary hen; and the nostrils are surrounded by fine hairs, like the whiskers of a cat. The legs are long and powerful, and in pro-



THE APTERYX.

portion to the size of the bird much stronger than those of any of the other cursores, and admirably adapted for rapid progress by means of extended leaps.

By the natives of New Zealand it is called "kiwi," and they hunt it for the sake of its flesh, of which they are extremely fond. The Apteryx is seldom found moving about in the day; until the approach of night it buries itself in the recesses of the forest, and then ventures forth in couples in search of food, which it discovers in the darkness with the greatest ease. Its cry resembles the sound of a whistle, and it is by imitating this that the hunters are enabled to take it. It is sometimes chased by dogs, and at others secured by suddenly coming upon it with a lighted torch, and, being thus dazzled, it makes no attempt at flight; but it on all occasions defends itself with great vigour, by means of its legs, a single stroke being often sufficient to inflict severe injury. Like all other wild birds which have not the power of flight, it is now becoming extremely rare, and is never seen but in remote solitudes. A live specimen has at length reached England in safety a few weeks ago, and is now deposited in the gardens of the Zoological Society.

THE PORTRAIT GALLERY.



THE FIRST MAGYAR MINISTRY IN 1848.

Francis Deak.	Louis Kossuth.	Lazarus Mészáros.
Prince Paul Esterházy.	Louis Batthyányi.	Bartholomew Szemere.
Baron Joseph Eotveos.	Stephen Szechényi.	Gabriel Klauzál.

For many years previous to the late struggle in Hungary, it was evident that she could never enjoy peace and prosperity under Austrian rule. No man can serve two masters, nor can any man pursue two opposite lines of policy without suffering either of

them to clash. In Vienna the Emperor of Austria was an absolute sovereign, ruling by his will alone; in Pesth he was a constitutional king, bound up by established laws, and compelled to act in harmony with the Diet. Under such circumstances, he would naturally seek, as far as possible, to assimilate the institutions and mode of government in the two countries. But the traditions and hereditary policy of his family, and his own love of power, were utterly opposed to his granting representative institutions to Austria. No member of the Hapsburgh family was ever known to suffer any limits to his power to exist longer than he could help. All the bulwarks of popular liberty in the other states of the Austrian empire had been long ago destroyed; and it was determined that in Hungary also they should speedily be removed, and that she should become in all respects as Austria was; so that, wherever the black-eagle standard floated, life and limbs, liberty and property, should rest at the disposal of "His Imperial Majesty." There should be no division of authority—no divided allegiance. "*Aut Cæsar, aut nullus*," was his motto. "I will not," said he, "hamper and fatigue myself by attempting to adapt my policy to two states of things differing so widely. There must be perfect unity and perfect uniformity all over my dominions." Thus, too, had every member of the House of Hapsburgh spoken for two hundred years.

In the pages of THE WORKING MAN'S FRIEND we have been endeavouring to give some account of the various aggressions committed by this family upon Hungarian liberty. From time to time they had met with greater or less success. The Magyars had protested, petitioned, and remonstrated, and received such answers as best accorded with the strength and security of the Government for the time being.

When the storm of revolution broke over Europe in the early part of 1848, and the people of Vienna rose and compelled Metternich to fly to England, the Assembly of Posonia seized the opportunity of laying their grievances before the throne, and demanding redress. Kossuth, Louis Batthyányi, Stephen Szechényi, and Joseph Cziráki, were sent as a deputation to Vienna for this purpose. After their departure, a number of young men, called "jurats," or law-students, who assisted the deputies as secretaries, formed the resolution of flying to the assistance of the Viennese, whom they imagined to be still engaged in an armed struggle with despotism. It was midnight on the 14th of March; the city was buried in the profoundest repose; the fighting was over, and the cause of liberty had triumphed. The inhabitants were resting in sleep after the fatigues of the barricades; here and there, from hospitals and private houses, a light shone dimly into the dark street, from the chambers where tender affection was watching by the weary couches of the wounded; and in the recesses of his palace, the perjured tyrant groaned with chagrin at his defeat, and hungered, hyena-like, for more blood. Suddenly the sound of military music was heard—the measured tread and wild hurrahs of armed men. The people rushed to the windows, thinking it was a reinforcement to the cause of absolutism come to renew the conflict. But the March moon gleamed coldly, yet kindly, upon the national flag of Hungary; and the patriotic songs, as they rang through the still night-air, seemed like pæans chanted before the altar of freedom. The jurats had arrived, and the Emperor forthwith confided to Louis Batthyanyi the task of forming a cabinet which should possess the full confidence of the Hungarian nation; with the stipulation, however, that the Minister of Foreign Affairs should reside at Vienna.

Their return was expected at Pesth with trembling anxiety. From all the houses the tricoloured flag was hung out. Crowds promenaded the streets, talking over the news of the day, and speculating upon the probable result of the agitation. The students, writers, and others of the youthful part of the population, surrounded the doors of the building in which the Diet sat, and sought to influence it to vindicate their rights by force at once. But, confiding in the justice of their cause, and desirous that they should not be the aggressors in a struggle which must of necessity cause so much bloodshed, all such appeals were at once suppressed. The arrival of the couriers with the good news at last put an end to all doubt and difficulty.

The deputation returned in triumph and all parties hailed the Emperor's concession as the inauguration of a new era in the history of Hungary. Batthyanyi was President of the Council; Bartholomew Szemere, Minister of the Interior; Francis Deak, Minister of Justice; Prince Paul Esterhazy, Minister of Foreign Affairs, to reside at Vienna—and it will be seen hereafter that the arrangement exactly suited Prince Paul's taste; Louis Kossuth, Minister of Finance; Count Szechényi, Minister of Public Works; Baron Eotveos, Minister of Public Instruction; Colonel Lazarus Meszaros, Minister of War; and Gabriel Klauzal, Minister of Commerce.

Into the history of all that this ministry accomplished—of the noble part it played in the heroic but disastrous struggle that followed, our space will not here permit us to enter. At the head of the list stands Louis Kossuth, the Hampden of Hungary, who breasted the torrent of despotism when it ran highest and strongest; and he still lives to labour for freedom. Next him stands "his poor friend, Louis Batthyanyi," as he so feelingly called him in his speech at Southampton. Many others of his gallant companions in the field and forum wander over the world penniless and forlorn, or pine in the dark dungeons of Austrian fortresses but Louis Batthyanyi, the true, the tender-hearted, rests better in his bloody grave. In the last hour of mortal anguish, he sought to escape a felon's death by committing suicide. He was discovered when his purpose was but half accomplished, and was brought out, faint with loss of blood, and executed. As he was a brave man while he lived, his courage did not forsake him at the last hour. His dying breath was spent in instructing his wife to bring up his children in unfaltering hatred to Austria, and we believe that the wife of such a man will not prove unfaithful to a trust so sacred.

And there is Esterhazy, with his mild, courtier-like face—a prince, a nobleman, "well known in the highest circles;" but this is all that can be said of him. He is, we believe, the only one amongst these nine men who afterwards proved a recreant to the cause of his country. He denounces Kossuth through the medium of the English press, and alleges that a large section of this Magyar Ministry was the whole time distinguished by its red-hot Radicalism; that he joined it only with the view of seconding the efforts of the moderate party, and preserving the connexion with Austria. He charges his coadjutors with gross breaches of faith, and yet acknowledges that he still continued to hold office with them. In fact, he never resigned his post until holding it became dangerous—until Jellachich was advancing upon Hungary at the head of the Croats. Then, when it was the duty of a brave man to stand true to his convictions, and support the cause of justice and liberty, on which side soever he believed them to be—then he fled. And during the war he remained shut up in his castle a voluntary prisoner. When all was over, he came forth, and repaired to Vienna, to charm the senseless crowd of fashion in the saloons of the capital by the glitter of diamonds upon his embroidered coat, and to boast of his having cut the connection of the "low" vulgar, who fought so bravely, and died so well for great principles. And his son, a major in the National Guard of Vienna, immediately upon the news of the surrender of Goergey, joined the army, and flew to the scene of slaughter (for all fighting had ceased), and performed the part that an "officer and gentleman" in the Austrian service is expected to take, by sharing in the women-flogging and murders of Haynau. But the Esterhazy family has large estates, and, let men's honour fare as it may, estates must be looked to. And the Batthyanyi who writes to thank the prince for his attack upon Kossuth, is not any of the Batthyanyis who have figured so finely in Hungarian annals, but another and very different one, whose name is better known in the haunts of folly than on tented fields or in halls of council.

As a man is known by the company he keeps, so also he is known by the enemies he makes, and to have merited the slander and reviling of such men as these is the best title the Magyar Ministry could have to our respect. Truth is daily more and more gaining the ascendant over men's minds. The days are fast passing away when the merits of a cause are judged by its failure or success. Diplomatic tricks are fast falling into contempt; and History, while she holds up the Czar and the Emperor, Haynau and Esterhazy, as the representatives of barbarous force and shameless treachery, will embalm the nine names which stand at the head of this article in the memories of all future generations, as words of hope to all who fight in the good old cause of freedom.

THE LADIES' DEPARTMENT.

HAND SCREENS IN CROCHET.

(For instructions in Crochet, see page 14.)

Materials.—5 skeins of rich dark blue purse silk, 6 skeins of fine and pure gold thread; Boulton's crochet hook, No. 18; 2 yards of dark blue silk fringe, 2 inches deep; 2 yards of fine wire, and ¾ yard of white gros-de-Naples. A pair of screen handles.

Of course silk of any other colour may be used, if blue will not correspond with the furniture. Green looks very handsome with gold, and scarlet with silver. The metal thread used must be of the very best description only.

Begin by making six gold flowers, thus:—26 ch., close in 19th for a round, × 7 ch., s.c. under loop, × twice, 7 ch., slip on the closing of the round—thus there are three loops in the centre one; work under the chain of the first, 1 s.c., 1 d.c., 6 t.c., 1 d.c., 1 s.c. Under the centre one, 1 s.c., 1 d.c., 9 t.c., 1 d.c., 1 s.c.; and the third loop like the first. Slip on the base of the flower, and work down the 19 chain in s.c.

Six of these flowers are to be made, and afterwards sewed on the silk, radiating from the centre, and each occupying the middle of one side of the hexagon.

For the Screen (beginning in the centre).—With the blue silk, make a chain of six, and close into a round.

1st: × 1 d.c., 5 c.h., miss none, × 6 times.

2nd: × 5 t.c. on 5 ch., 5 ch., miss 1 d.c., × 6 times.

3rd: × 7 t.c., (beginning on the last of 5 ch.), 5 ch., × 6 times.

Continue in this manner, increasing the t.c. stitches by 2 at each section of the hexagon, in every round, until there are 33 t.c. in each division, always making 5 chain between. Then s.c. all round, adding the silk flowers where they occur—that is, over the 8th, 17th, and 26th of the 33 t.c. in each section. The flowers are made in the following manner:—12 ch., close into a loop at the 7th, 6 ch, s.c. under loop, 8 ch., s.c. under loop, 6 ch., slip at the stem, × 5 ch., s.c. under first loop of 6, × 5 times, * 5 ch., s.c. under the loop of 8, * 7 times, † 5 ch., s.c. under loop of 6, † five times; s.c. down the chain, and continue the round.

The gold flowers are to be worked in the same way, and attached over the centre of each 5 chain which form the corners of the hexagon. Work a chain all round, catching up the points of the flowers at regular intervals, and then work two rounds of s.c., with 3 stitches in one at the points.

Do all the crochet work of these screens rather tightly. Sew on the large gold flowers, passing the ends through the centre loop of the screens, and form a little rosette of × 6 chains, s.c. in the round, × repeated to close the middle.

To make up the Screens.—Cut out a hexagon, the exact size of the crochet, in paper, and bend the wire into the same form. Be very particular that the wire frame shall be true and correct. Cover it on both sides with white silk, over one side of which sew the crochet. It will only require to be fastened round the edges. The fringe must then be laid on, the handles attached, and the screen is completed.

If preferred, the back of the screen may be covered with silk of the colour of the crochet, as more durable than white.

LAMP MAT (IN CROCHET).

Materials.—6 skeins of white netting silk, and 3 skeins each of four shades of cerise ditto, the darkest being almost brown, and the lightest a rich and brilliant cerise. A hank of rather large steel beads, a string of short square steel bugles, and 1 oz. of fluted ditto, ¾ inch long. A skein of rather fine white cotton cord, and 54 rings. Tapered, indented crochet-hook, No. 22. Begin with the darkest cerise, and do not change until the directions require it.

1st Round: With this silk work 8 s.c. on the end of the cord, and form into a round, after which 6 s.c. to secure it.

2nd (Cerise and white): × 1 cerise in the same stitch the last, 1 w., 2 cerise in 1, × 6 times.

3rd: × 1 cerise worked in the same stitch as the last two, 3 white, 2 cerise in one, × 6 times.

4th: Like 3rd, with 5 white instead of 3.

5th: × 1 cerise in the same stitch as the last two, 7 white, 4 cerise in 1, × 6 times.

6th: × 1 cerise in the same as the last 4, 11 white (the last 2 being over 2 cerise), 4 cerise in one, × 6 times.

7th: × 1 cerise on the next stitch, 13 white, 1 cerise on 1, 3 on the centre one of 5, × 6 times.

8th: Like 7th, with 15 white. Change to the next shade of cerise.

9th: × 1 cerise on next, 8 white, 1 cerise, 8 white, 1 cerise, 3 cerise on centre of 5, × 6 times.

10th: × 1 cerise on next, 8 white, 3 cerise (the second over 1 cerise), 8 white, 1 cerise, 3 in 1, × 6 times.

11th: × 1 cerise on next, 6 white, 3 cerise, 1 white, 1 cerise, 1 white, 3 cerise, 6 white, 1 cerise, 3 in 1, × 6 times.

12th: × 1 cerise in next, 6 white, 11 cerise, 6 white, 1 cerise, 3 in 1, × 6 times.

Next shade of cerise.

13th: × 1 cerise in next, 5 white, 5 cerise, 2 white, 1 cerise, 2 white, 5 cerise, 5 white, 1 cerise, 3 in 1, × 6 times.

14th: × 1 cerise in next, 7 white, 3 cerise, * 1 white, 2 cerise, * twice, 1 white, 3 cerise, 7 white, 1 cerise, 3 in 1, × 6 times.

15th: × 1 cerise in next, 11 white, 3 cerise, 1 white, 3 cerise, 11 white, 1 cerise, 3 in 1, × 6 times.

16th (Lightest cerise): × 1 cerise in the same stitch as the last 3, 13 white, 2 cerise, 1 white, 1 cerise, 1 white, 2 cerise, 13 white, 4 cerise in 1, × 6 times.

17th: × 1 cerise in the next, 16 white, 3 cerise (over 1 w., 1 c., 1 w.), 16 white, 1 cerise, 3 in 1, × 6 times.

18th: × 1 cerise on next, 18 white, 1 cerise, 18 white, 1 cerise, 3 cerise in 1, × 6 times.

19th: × 1 cerise in next, 39 white, 1 cerise, 3 cerise in 1, × 6 times.

20th: × 1 cerise in 1, 2 white, × 2 cerise, 3 white, * 7 times, 2 cerise, 2 white, 1 cerise, 3 cerise in 1, × 6 times.

21st: × 1 cerise in next, * 3 white, 2 cerise, * 8 times (the white over white, the cerise over cerise), 3 white, 1 cerise, 3 cerise in 1, × 6 times.

22nd: × 1 cerise in next, 3 white, * 1 cerise, 2 white over 2 cerise, 1 c., 1 w., * 8 times, 2 more white, 1 cerise, 3 cerise in 1, × 6 times.

23rd: × 1 cerise in next, 3 white, * 1 cerise, 4 white, × 8 times, 1 cerise, 3 white, 1 cerise, 3 cerise in 1, × 6 times.

24th: Entirely cerise, working 3 in 1 at all the six points.

25th: White and cerise alternately, a single stitch of each, with 3 in 1 at the points.

26th: All cerise, increasing, as before, at the corners.

This completes the centre of the mat. Now cover six of the rings with the darkest cerise, 12 with the lightest, 12 with the 2nd lightest, and 24 with white. They are to be done in s.c. The darkest are sewed in the centre of each side of the hexagon, with a white at each side, and two more (joined together) above it. The lightest cerise are placed at the points, the two being joined together, and one to the mat. These form the extreme points, and the other twelve are placed to connect the lightest rings with the white. The short square bugles are threaded, with some of the beads, to form a cross in the centre of each of the white rings; the other rings have a cross of beads only. All the rings are sewed together, and to the mat.

The elegant fringe round the edge is formed of the long steel bugles, connected with each other at the outer edge by a chain of 4 steel beads. The needle is slipped down them to connect them with the rings, and a single bead is threaded at the base of each. The side rings have 6 bugles each, placed at equal distances; the corners have 8; and 1 is placed where every two rings are joined.

This mat would be very beautiful if worked in white and shades of green, with gold beads and bugles.

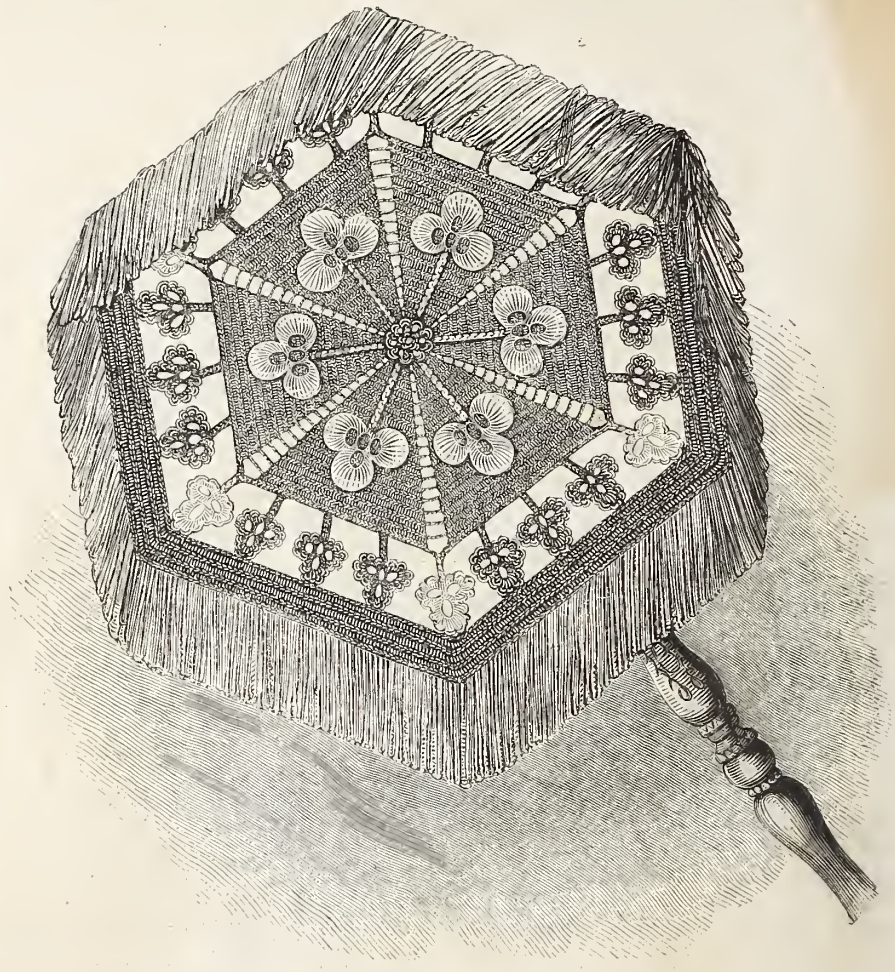
INSTRUCTIONS IN EMBROIDERY.

The general term embroidery includes so great a variety of styles of work, and all these styles are so ornamental, that a thorough acquaintance with them is extremely desirable to all who wish either to save or to increase their incomes.

The present style of dress is remarkable for its elaborate decoration; from the gold-and-pearl-embroidered velvet slipper, to the point-lace head-dress, scarcely an article belonging to the toilet but furnishes evidence of the skill of the needlewoman: whilst those who excel in any one branch of work cannot fail to find a pleasant and profitable employment for their time.

The first and most expensive kind of work is that on velvet, silk, leather, or any similar material, and of which such magnificent specimens were seen in the Austrian, Belgian, and Eastern departments of the Exhibition. The designs usually represent flowers, birds, or arabesques, worked in silks of various colours, intermixed with gold and silver bullion, pearls, and beads.

Another kind is embroidery on muslin or cambric, used for dresses, handkerchiefs, and an infinite variety of articles. This kind of embroidery consists partly of raised work, partly of open and ornamental stitches. The raised work is termed *satin stitch*, and is done with soft cotton.



HAND SCREEN.—(*See page* 31.)



LAMP MAT.—(*See page* 31.)

Muslin Applique is another style, and is at present very much in vogue. It consists of muslin or cambric laid on net, the design being in the thicker material, and the ground in net. Ornamental stitches are often introduced in this kind of work.

Braiding may be termed an inferior sort of embroidery It is very quickly done, and the effect is pretty; but, of course, it is not so intrinsically valuable as the other kinds of work.

Tambour-work, once so fashionable, is now so entirely disused, that we need only observe it was done with a small needle, resembling a very fine crochet-hook, and the pattern worked on muslin or net in chain-stitches.

(To be continued.)

HISTORICAL EVENTS.



HENRY III. AND SIMON DE MONTFORT.

English freedom is the growth of many an heroic age. It was not nursed in silken pleasures, nor born in king's palaces, but on the broad battle-field, amidst the swords of the brave and lion-hearted. As Wordsworth, in one of his noblest sonnets, writes—

> "————In our halls are hung
> Armoury of the invincible knights of old.
> We must be free or die who speak the tongue
> That Shakspeare spake—the faith and morals hold
> That Milton held—in everything we're sprung
> Of earth's best blood—have titles manifold."

If our chronicles tell of times when English freedom was withered up—when hope seemed about to leave the land—when the free man appeared on the point of becoming a serf or a slave—they can also tell how, in the dark hour of extremity, the sturdy yeoman and mailed baron rallied for the cause of right against might, and how before them quailed crowned and mitred tyranny. With us, resistance to kingcraft—that kingcraft which led one Stuart to the scaffold, and sent another to wander on the face of the earth, an outcast from his country and his throne—is not merely an abstract right, but an ancient precedent as well. The free barons of old were not the men tamely to submit to the grasping pretensions of royalty, and more than once they com-

pelled crowned heads to be obedient to them. The feudal baron had his faults, but he had his virtues as well, and one of the noblest of them was the tenacity with which he maintained his rights against the monarch, and his firm determination to leave to his sons, in this respect, as glorious a heritage as his own.

Of this spirit we have one illustration in the collision that took place between the barons and the son of the craven John. And, in truth, such an illustration was required by the circumstances of the time. The Third Henry had broken every promise he had made. Aliens ruled the land—English treasure was squandered on them—English freedom was sacrificed to them. The people remonstrated day by day, but in vain. "Seafaring people," such was their language, "avoid the ports of England as the dens of pirates, and these pirates are but the executioners of your royal will. They despoil merchants of the articles of their traffic with such rapacity, that commerce, lately so flourishing, is quite cut off between this country and the nations of the Continent. Even the fishermen dare not bring the produce of their nets into the market-place, and are compelled to cross the Channel, and to brave the dangers of the sea, in order to escape the rapacity of your purveyors. Your acts of piety, which ought to edify your subjects, become a shameful and sacrilegious scandal in their eyes, when they know that your numerous wax-lights and silk stuffs, with which you deck the altar and the priests in your processions, have been torn from those who rightfully possessed them." But, wearied of remonstrance, they felt the time had come for action—and the hour brought the man!

Among the favourites of the sovereign was the son of that Simon de Montfort who had attained so gloomy a renown in the crusade against the Albigenses. This son, by right of his mother Amicia, held the fief of the earldom of Leicester, and came to fix himself in England, where he espoused the Princess Eleanor, sister of the King, and widow of the Earl of Pembroke. His position or name, as an alien, and the favours of the King, contributed alike to make him unpopular in the beginning. But he had the art of soon winning the good graces and the confidence of the Church and of the nobles, and became their recognised leader in withstanding the royal schemes.

The King had nominated him governor of the then English province and dependency of Guienne, in France. In this governorship his administration was marked by implacable severity, and numerous accusations were consequently preferred against him. Henry III. would have had him convicted, but in vain; and the King, in his anger, disparaged him to his face before all the court, and called him a traitor. The stigma was never forgotten or forgiven, and Simon de Montfort went from the royal presence burning with revenge. The confederated barons made him their leader. They acted wisely. It would have been impossible to have found a more fitting head.

The King having summoned, in 1258, a great council at Westminster, in order to obtain subsidies towards the conquest of Sicily, Leicester, the evening before the meeting of this *quasi* parliament, collected at his house the leaders of the clergy and nobility. Next day they proceeded in full armour to the appointed sitting. Among those present were Roger Bigod, Earl Marshal of England; Humphrey Bohun, Great Constable; and the powerful Earls of Warwick and Gloucester. The engraving accompanying this sketch gives us an idea of the scene that ensued.

As soon as the King made his appearance, the barons drew their swords, and demanded a renewed oath to Magna Charta, and the addition of twelve lords to his council, for carrying out the necessary reforms. Henry submitted. A new parliament was convoked at Oxford, on the 11th of June, 1258. There the King swore again to observe the Great Charter, and made several important concessions, known as the Statutes or Provisions of Oxford. The fulsome historians of a later age termed this "the mad Parliament."

Among other points, it was now decided that Parliament should meet, in full right, three times a year—in February, June, and October—that the freeholders should choose a new sheriff annually; that sheriffs, judges, treasurer, and Chancellor, should every year render an account of their administration; that the barons not attending the judicial sittings of the sheriffs should not be fined any more; that foreigners should no longer be appointed warders or keepers of castles; that no one should henceforth plant new forests, or let the revenues of shires. Finally, twelve persons were appointed to hold the proxies of the rest of the members of Parliament in the various sittings, so as to save the delay and expense of too frequent journeyings from place to place. It was not the day of railways.

Soon discord arose between Gloucester and Leicester, and Henry III. thought the opportunity propitious for the recovery of his property. A civil war was the consequence; and Leicester, assisted by the Prince of Wales, reduced the King to ignominious terms, concluded on the 18th of June, 1263. Again Henry made an effort, which terminated in his captivity, effected at the battle of Lewes, in Sussex.

Leicester was now absolute in England. The nobles turned against him, but he was a man of great resources, and, as if he had looked far down into futurity, he summoned the people to his side. The concessions extorted from the selfish ambition of a tyrannical adventurer were the small beginnings of the rights and privileges which the Commons of England afterwards attained. The admission of the Commons into the constitution of Parliament was not, however, made law till the reign of Edward I., in 1295, when a writ from the royal hand confirmed the new power.

Prince Edward, whom Leicester had kept as a hostage for the fulfilment of the King's enforced promises, managed to escape and to levy an army, which surprised that of the revolted peer, with the advantage of numbers and position. Leicester felt that his hour was passed, and, when he surveyed the fine appearance of the hostile array, he exclaimed: "By the army of St. James they have profited by our lessons! May God have mercy on our souls, for our bodies are theirs!" Nor was the prayer unnecessary—when the battle had drawn to a close, of Simon de Montfort nought remained but the lifeless clay.

Whatever opinion may be formed of the character of the Earl of Leicester—of his ambition and rapacity—it must still be acknowledged that his attempts at reform were productive of lasting benefits to the kingdom by laying the foundation of the liberties which we now enjoy. At this conclusion we arrive very rapidly: where parliaments are not held, the people are virtually slaves. Our representative system, being more beneficial than those of other countries, from the fact that it had the power of the purse, has done much for English liberties. It has watched over them;—it has sheltered them;—they have grown hardy and flourishing beneath its tender care. We imagine few will dispute this point, and it is equally clear that our representative system was fully developed under Simon de Montfort. The authority of Hallam decides this question. In his splendid work on the "Middle Ages," he says:—

"The principle of representation, in its widest sense, can hardly be unknown to any government not purely democratical. In almost every country the sense of the whole is understood to be spoken by a part, and the decisions of a part are binding upon the whole. Among our ancestors, the lord stood in the place of his vassals, and, still more unquestionably, the abbot in that of his monks. The system, indeed, of ecclesiastical councils, considered as organs of the Church, rested upon the principle of a virtual or an express representation, and had a tendency to render its application to national assemblies more familiar.

"The first instance of actual representation which occurs in our history is only four years after the conquest, when William, if we may rely on Hoveden, caused twelve persons skilled in the customs of England to be chosen from each county, who were sworn to inform him rightly of their laws; and these, so ascertained, were ratified by the consent of the great council. This Sir Matthew Hale asserts to be 'as sufficient and effectual a Parliament as ever was held in England.' But there is no appearance that these twelve deputies of each county were invested with any higher authority than that of declaring their ancient usages. No stress can be laid, at least, on this insulated and anomalous assembly, the existence of which is only learned from an historian of a century later.

"We find nothing that can arrest our attention in searching out the origin of county representation till we come to a writ in the fifteenth year of John, directed to all the sheriffs in the following terms: Rex Vicecomiti N., salutem. Præcipimus tibi quod omnes milites ballivæ tuæ qui summoniti fuerunt esse apud

Oxoniam ad Nos a die Omnium Sanctorum in quindecim dies venire facias cum armis suis: corpora vero baronum sine armis singulariter, et *quatuor discretos milites* de comitatu tuo, illuc venire facias ad eundem terminum, ad loquendum nobiscum de negotiis regni nostri. For the explanation of this obscure writ, I must refer to what Prynne has said; but it remains problematical whether these four knights (the only clause which concerns our purpose) were to be elected by the county, or returned, in the nature of a jury, at the discretion of the sheriff. Since there is no sufficient proof whereon to decide, we can only say with hesitation that there *may* have been an instance of county representation in the fifteenth year of John.

"We may next advert to a practice, of which there is a clear proof in the reign of Henry III. Subsidies granted in Parliament were assessed, not as in former times, by the justices upon their circuits, but by knights freely chosen in the county-court. This appears by two writs, one of the fourth and one of the ninth year of Henry III. At a subsequent period, by a provision of the Oxford Parliament in 1258, every county elected four knights to inquire into grievances, and deliver their inquisition into Parliament.

"The next writ now extant, that wears the appearance of parliamentary representation, is in the thirty-eighth year of Henry III. This, after reciting that the earls, barons, and other great men (cæteri magnates), were to meet at London three weeks after Easter, with horses and arms, for the purpose of sailing into Gascony, requires the sheriff to compel all within his jurisdiction, who hold twenty pounds a-year of the king in chief, or of those in ward of the king, to appear at the same time and place; and that, besides those mentioned, he shall cause to come before the king's council at Westminster on the fifteenth day after Easter, two good and discreet knights of his county, whom the men of the county shall have chosen for this purpose, in the stead of all and each of them, to consider, along with the knights of other counties, what aid they will grant the king in such an emergency. In the principle of election, and in the object of the assembly, which was to grant money, this certainly resembles a summons to parliament. There are, indeed, anomalies, sufficiently remarkable upon the face of the writ, which distinguish this meeting from a regular parliament. But when the scheme of obtaining money from the commons of shires through the consent of their representatives had once been entertained, it was easily applicable to more formal councils of the nation.

"A few years later there appears another writ analogous to a summons. During the contest between Henry III. and th confederate barons in 1261, they presumed to call a sort of Parliament, summoning three knights out of every county, secum tractaturos super communibus negotiis regni. This we learn only by an opposite writ issued by the king, directing the sheriff to enjoin these knights, who had been convened by the Earls of Leicester and Gloucester to their meeting at St. Alban's, that they should repair instead to the king at Windsor, and to no other place, nobiscum super præmissis colloquium habituros. It is not absolutely certain that these knights were elected by their respective counties. But even if they were so, this assembly has much less the appearance of a Parliament than that in the thirty-eighth of Henry III.

"At length, in the year 1265, the forty-ninth of Henry III., while he was a captive in the hands of Simon de Montfort, writs were issued in his name to all the sheriffs, directing them to return two knights for the body of their county, with two citizens or burgesses for every city and borough contained within it. This, therefore, is the epoch, at which the representation of the Commons becomes indisputably manifest, even should we reject altogether the more equivocal instances of it which have just been enumerated."

WORKS OF GREAT MASTERS.

ORNAMENTAL SCULPTURE BY JEAN LEPAUTRE.

We present our readers with two specimens of ornamental sculpture, rich and noble in design, and highly finished in workmanship. They belong to a felicitous era of the arts, the middle and the latter half of the seventeenth century. In the beginning of the century following a style less pure was introduced. Minute and crowded decoration, and a meretricious and artificial prettiness, took the place of that bold, free, clear style, which for a long period had characterised the principal productions in this department of art.

Our illustrations represent with great fidelity two beautiful samples of the genius and skill of Jean Lepautre, the famous architect, designer, and engraver. While a marvellous power is shown in the details, each of which rivets the eye in succession, the beauty of general form and outline in the whole vase has been preserved with care. This is a point soon overlooked in the degeneracy of taste. But here the whole effect, which may be termed the substance and climax of that result at which the sculptor aims, is not sacrificed to minuteness of detail. He has not been bewildered by his own teeming fancies; they are distinct, harmonious, subordinated. They are clear without being sharp, and rich without being florid. The grouping is as dramatic and as explicit as it could have been made in a painting, and the figures have the advantage of bold *alto relievo*. We have not surface merely, but real shape, in exquisite proportion. There is, besides, the charm of profuse variety in each.

In the first vase the figures are busy in what we might almost term a little landscape. There is a grand, bold, rude, and shaggy mythological monster; there are fruits, flowers, and leaves; and all is delicately as well as deeply chased.

In the second illustration we have also a mythological subject: Neptune, with his trident in hand, is about to descend from his car, surrounded by his conch-blowing retinue, and to enter the coral halls where he reigns over the deep sea. The naiads are peeping from their weedy bowers. The rude immortal who has charge of the steeds of "*Poseida-on Einosichthon*" (the Homeric name of Neptune) is restraining them while the dread monarch descends; and the whole vision of the sculptor teems with life and energy. The legs of the horse, with his front paws plunged in the water, seem to move; and the water itself, which is an element distinguishing this vase from the other, flows, so to speak, in long and placid waves at the presence of its king. It is surprising how gold, or bronze, or silver should be made by the "cunning" chisel to convey these ideas, to exhibit such a scene and to tell such a story.

The reign of Louis XIV. was highly favourable to art. Whatever the faults of that splendid erring man, he certainly had an open hand and a smiling countenance for genius. Among the eminent artists to whom his encouragements opened the road of fame and prosperity was he of whose skill we are enabled to give our readers a specimen in the two fine engravings which we have been discussing.

John, or Jean Lepautre, was born in 1617. In his youth he was bound apprentice to a joiner or house carpenter, who instructed him in the elements of drawing. He not only quickly mastered all that his teacher could impart to him, and became an able draughtsman, but also a finished engraver. Endued with this profitable combination of talents, he published a great number of architectural decorations, embracing a variety of subjects—chimney-pieces, vases, ceilings, interiors of rooms, &c. All these plans, or suggestions, discover a fertile and brilliant imagination. He never became, properly speaking, or in the more technical sense, an architect; but he deserves a separate mention on account of the extraordinary influence which he exercised upon the art of his time, and upon contemporary artists. In 1677 Lepautre was

admitted into the Academy of Sculpture. It is a curious fact, and to be regretted, that the majority of his designs (his decorations for ceilings, &c.) were not adopted. They were, in almost

appreciated. His designs are in great request, especially among workers in gold and silver.

Anthony, or Antoine Lepautre, the brother of John Le-



DESIGN FOR A VASE, BY JEAN LEPAUTRE. —(*See page* 35.)

every instance, greatly superior to the plans put in execution in the palaces and great buildings of that epoch. He died in 1682, at the age of 65, greatly admired, though not perhaps duly

pautre, was, properly speaking, an architect, and was employed as first architect by the King. The principal edifices built from his designs are the Church of Port Royal, the Hôtel de Gèvres

that of Chamillard, the house of the Duke de Gèvres at St. Ouen, and the Beauvais in the Rue St. Antoine at Paris He published a work on architecture, afterwards edited with notes by Daviler.

associate in the Academy of Sculpture in 1671, the year of its foundation, six years earlier than his brother John. He died in 1691, at the age of seventy-seven. His death was by some attri-



DESIGN FOR A VASE, BY JEAN LEPAUTRE.—(*See page* 35.)

Anthony Lepautre added two wings to the Chateau of St. Cloud, and drew the plan of the higher part of the great cascade. He executed several other remarkable works, and was admitted as an

buted to chagrin at Mansard's having been preferred before him as the architect of the Chateau of Clugny. A collection of his designs was published in 1751.

THE PORTRAIT GALLERY.

THE RIGHT HON. BARON TRURO,

LORD HIGH CHANCELLOR OF ENGLAND.

Thomas Wilde, whose present style and title have recently been given, was the second of the four sons of an attorney in London. He was born in that city on July 7th, 1782, and educated at St. Paul's School. On terminating his course in that establishment, he went into the office of his father. Even as a boy he discovered much smartness in professional business, and the attendants of the Judges' Chambers did not fail to notice the unusual shrewdness and energy of one who still wore a frill about his neck.

Leaving his father's office, he aided in the conduct of the business of a legal firm in the City, extensively employed by the members of "Lloyd's." While thus engaged he is said to have generously assisted, from the proceeds of his own professional exertions, the course of his elder brother at Trinity College, Cambridge, who early obtained a judicial appointment and the honour of knighthood. Sir John Wilde is now Chief Justice of the Cape of Good Hope. A younger brother remained with his father, and is the head of one of the leading firms in the City of London, the nucleus of which was formed by his parent.

The signal ability Mr. Wilde displayed in the mercantile transactions of the members of "Lloyd's" was not merely noticed, but so highly approved, by the men of commerce with whom he was thus brought into contact, that they strongly urged him to start in his profession on his separate account, and even proffered, in addition to their legal business, all such support as he might consider desirable. Complying with their wishes, and accepting their aid, with a deep sense of the kindness and confidence of which he was the object, he entered on his practice as an attorney, which he conducted with the greatest success. In the business of the Bankruptcy Courts, and in that of Nisi Prius at Guildhall, his name appears at this period on the cause-lists, associated not only with the greatest number, but with all those of the highest importance.

Meanwhile, one of the recreative topics in the conversations of men of business in the City was "the pretty banker's widow," who was said to enjoy the very comfortable jointure of £2,000 a year; and though the step was deemed sufficiently ambitious, Mr. Wilde made proposals to the lady. It was whispered, however, that the lady would only accept them on one condition—that he would relinquish his business as an attorney, and go to the bar. But, apart from the sacrifice that would thus be incurred, there was an extraordinary, indeed some might suppose an insuperable, difficulty, for Mr. Wilde not only stammered, as many gentlemen do, when engaged in such verbal communications, but even in ordinary conversation. Nor did he fail, it may be supposed, to indicate the obstacle—delicately, doubtless, for who would be chargeable at such a crisis with exaggerating an infirmity? But of what avail could it have been even to incur such temerity? For had not the Athenian corrected his stammering by practising with pebbles in his mouth, and strengthened his voice by walking or running up hill, and pronouncing some passage in an oration or a poem during the difficulty of breathing which that caused; and then achieved, as Demosthenes, a world-wide and undying fame? Mrs. Desvagues, therefore, could not, we may imagine, recede from her determination; but with that quick, clear, and correct perception characteristic of her sex, and so often superior to the judgments of ours, she is said to have replied, "You can do anything on which you are resolved." If so, Mr. Wilde felt that from that decision, though not judicial, there was no appeal: he certainly relinquished his highly-remunerative practice, withdrew his name from the roll of attorneys, according to the requirement of the Inns of Court, and ventured the honours and emoluments of his future life on his success at the bar. But on forensic engagements he could not enter at once, for he had before doing so to remain for five years a student of an Inn of Court. Still there was happiness to be enjoyed at once in his marriage—happiness, too, of no ordinary kind, and continued without interruption during a long course of years. He fulfilled, also, the prediction which is rumoured to have been so affectionately and sagaciously uttered, in removing entirely by his own efforts the impediment from which he had suffered, and became an orator of distinguished fluency, power, and impressiveness.

In 1817, Mr. Wilde was called to the bar by the Honourable Society of the Inner Temple, and went the Western Circuit. To the credit of that branch of the profession he had left, no jealousies of his new position were allowed to operate; at once his clients were numerous in the Courts of Westminster and Guildhall, and on circuit he was equally successful.

There is ample evidence of the distinction he had gained during three years in the fact, that Alderman Wood, the confidential adviser of Queen Caroline, insisted that Mr. Wilde should be retained when legal proceedings were taken against that lady in 1820. He became, therefore, junior counsel on the Queen's trial, having as his leaders Messrs. Brougham, Denman, Tindal, Williams, and Dr. Lushington, who, as is well known, conducted it to a most successful issue, amidst the exultation of the people at large, whose idols the law officers of her Majesty became.

That the Queen was absolutely innocent was the belief of the multitude; while, on the suspicion of any wrong, as Mr. Ward, afterwards Lord Dudley and Ward, remarked, "the dignity of law outstrips its just functions when it interferes to punish misconduct that has been provoked by outrage and facilitated by neglect." The result, therefore, affected not only the royal person who had awakened and sustained an unparalleled sympathy, but the civil security of the people of England. Accordingly, on the abandonment of the Bill of Pains and Penalties, Lord Erskine said—"My life, whether it has been for good or for evil, has been passed under the sacred rule of the law. In this motion I feel my strength renovated by that rule being restored. The accursed change wherewithal we had been menaced has passed over our heads. There is an end of that horrid and portentous excrescence of a new law, retrospective, iniquitous, and oppressive; and the constitution and scheme of our polity is once more safe. My heart is too full of the escape we have just had, to let me do more than praise the blessings of the system we have regained." To so momentous a result, the intelligence, acuteness, and indomitable energy of Mr. Wilde greatly contributed, in the preparation of her Majesty's case out of court—services, indeed, of inestimable value, though not, like others, filling the public ear and public eye. That they were rightly appreciated by the Queen, who regarded him with the highest confidence, was manifest in Mr. Wilde's appointment as co-executor with Dr. Lushington; in which capacity, together with Lord and Lady Hood and Lady Ann Hamilton, they attended her remains to Brunswick, where they were deposited in the family vault, with those of fifty-seven of her illustrious relations.

In 1827 the successful progress of Mr. Wilde at the bar was next indicated by his being called to the degree of the Coif, thus affording him, as a leader, a full opportunity for the display of his great forensic talents, and immensely increasing the professional business he was then conducting. Three years after this, Lord Chancellor Lyndhurst, allowing his sense of distinguished ability to outweigh all merely political preferences, conferred on him the additional honour of a King's Serjeant, thus giving him, not only rank and precedence in the Court of Common Pleas, but also over all King's Counsel in the other courts.

This act was peculiarly graceful in Lord Lyndhurst, as Mr. Wilde had always been associated with the opposite party in politics. "I was a Reformer," he said recently, in the House of Lords, "before being so had become fashionable." Soon after he was made serjeant, his independent character was manifested in his repeated contests with the Lord Chief Justice Best; determinately resisting the unfair attempts of the bench to interfere with the proper functions of the bar. It was believed in the profession that the retirement of the Chief Justice of the Common Pleas was accelerated from his being, on all such occasions, *second* Best.

Mr. Wilde's advocacy of true liberty—for religious freedom is essential to that which is civil—became especially apparent during

the efforts that were made to obtain Catholic Emancipation. One of its zealous antagonists was the Duke of Newcastle, who, among diverse elements of power, leased various Crown lands, and possessed others, at Newark, in which town, despite of the declaration that "it is an infringement of the liberties and privileges of the House of Commons for any lord of parliament, or lord-lieutenant of any county, to concern himself in the election of members of parliament," the Duke's political authority was almost supreme. No sooner, therefore, did he find that his nominee, General Clinton, was favourable to Catholic Emancipation, than he was summarily dismissed from his parliamentary seat; while the Duke's tenantry heard in the same hour that a new writ had been issued, and that Mr. Michael Thomas Sadler was in the field, *really* enjoying the suffrages of the Duke, but *nominally* asking that he might have theirs. The anticipations of success, warranted not only by past experience, but by the subtle precautions that had been so promptly taken, were doomed, however, to a sudden and unlooked-for disturbance, by the announcement in Newark of Mr. Sergeant Wilde's immediate appearance. Most gallantly did he attack the baron, who, and not Mr. Sadler, was the actual antagonist—ensconsed, albeit, within the ducal walls of Clumber—amidst the throbbings of multitudes of hearts eager for his triumph, and to which there was a large accession, from his manly bearing and generous spirit, in the town of Newark itself, but only to conch his lance, and to witness the return of another nominee to St. Stephen's, where he speedily delivered himself of his pent-up Philippic—the accumulated eloquence of years—against that liberty which an overwhelming majority of England's representatives was about to bestow. But neither the return nor the oratory of Mr. Sadler soothed the troubled spirit of the Duke. Some of his tenants had dared to vote for Mr. Sergeant Wilde, and as he never granted them a lease, for that might endanger his political power, he sent them *instanter* notices to quit their various holdings, even to a gentleman who had a small piece of land for which he paid the annual rental of a sovereign. A public meeting was speedily called in consequence; Mr. Sergeant Wilde attended, but not Mr. Sadler; his presence was, of course, unnecessary, when the Duke had graciously determined to address to those assembled a letter, concluding in terms which speedily became a proverb: "Is it to be presumed that I am not to do what I will with my own?"

The Duke did not see that though *he* might class his tenantry with his "goods and chattels," yet a serf might rise to all the dignity of humanity, and that a sense of oppression quickens into life, activity, and the highest manly vigour, the faculties which have long been depressed as by an iron hand; for though a second attempt on the part of the popular candidate failed, like the first, another year (1831) brought to the Duke fresh revelations, in the return of Mr. Sergeant Wilde for his "*own*" borough at Newark, by a majority of one hundred and seventy-three over his "*own*" candidate, to enter the very Parliament that carried the Reform Bill.

On the first general election after that event, Mr. Serjeant Wilde lost his seat for Newark by a few votes; but in 1835 he was again returned for that borough. During his second career in Parliament, he, with extraordinary ability, defended its privileges, which he regarded as really those of the people, in the great case of Stockdale *versus* Hansard; he delivered on it one of the most eloquent and impressive speeches ever heard within the walls of the House of Commons; he became, in fact, the Mentor of both its political parties, and now gave ample evidence of that marvellous power of adjusting difficult questions, as well as those which are legal, which clearly marked him out as the future law-officer of the Government that should share his political views.

The acme of his professional career was attained in the celebrated cause of Small *versus* Atwood. The British Iron Company had purchased immense works in Staffordshire, when a great revulsion occurring in the iron trade, they, under a painful sense of loss, instituted a suit in equity to set aside the purchase, on the ground of the vendor's misrepresentations as to the real state of the property. So important was this cause deemed, that Sir Edward Sugden received a fee of five thousand guineas as counsel for Mr. Atwood; and when it was ripe for decision, Lord Lyndhurst withdrew from town for the express purpose of preparing a most elaborate judgment, which, in due time, was pronounced, amidst great admiration for the high qualities it displayed, against Mr. Atwood, and in favour of the British Iron Company. From this "crack decision," as it was popularly termed, there was, however, an appeal to the House of Lords, to conduct which Mr. Serjeant Wilde was retained with a fee of seven thousand guineas.

That even this unprecedented retainer was well, not to say hardly earned, is evident from his speech at the bar of the House of Lords occupying fourteen days; from such intensity of application being required that he did not leave his chambers in the Temple for nine or ten successive nights; from the ultimate reversal of Lord Lyndhurst's judgment; and from the consequent security of the Serjeant's client to the amount of from six to seven hundred thousand pounds. During the progress of this suit, Mr. Serjeant Wilde retired from the Western Circuit. He afterwards became exclusively engaged on special retainers, which the etiquette of the bar forbids being less than three hundred guineas, in the various circuits of England; and that he was thus retained to the extent of six, during one period of holding the assizes, it is believed the cause-lists of the circuits would prove.

In November, 1839, Lord Melbourne, fully aware of his perfect adaptation to become a law officer of the Crown, with honour to himself and advantage to the country, appointed him Solicitor-General. As the acceptance of this office vacated his seat, he had again to repair to Newark; and as the writ could not be obtained till the sitting of Parliament in February, the most strenuous efforts were made in the interval to prevent his return, by his opponents, at the utmost stretch of their territorial influence. But their struggle was vain. The Solicitor-General of Queen Victoria was returned once more, but only by a majority of nine, and received the honour of knighthood on the 19th of February, 1840. On the 13th of June, however, in the following year, he had to suffer a great domestic calamity, in the death of Lady Wilde, for whom he had always cherished the tenderest affection. Four children were the issue of this marriage, of whom one died early; the two sons were called to the bar in 1842.

During the time in which Sir Thomas was the Solicitor-General, great difficulties were experienced by the Government in connection with the affairs of Canada, while others arose from the imprisonment of the Sheriffs of London, for their breach of the privileges of Parliament; and in both cases his services were not only such as most amply to justify his being called to office, but to indicate his preparation for functions of still higher responsibility.

It was about this period, also, that Sir Thomas displayed his usual energy and perseverance, by the part he took in the important debate in Parliament relating to the alleged tampering with the jury-lists, from which the special jury had been taken in the case of Mr. O'Connell. On this occasion he delivered one of his most successful speeches in Parliament; it occupied three columns of the *Morning Chronicle*, and a second edition of the speech was published in that paper on the following day. Sir Thomas was afterwards the leading counsel in the appeal of Mr. O'Connell to the House of Lords, resulting in the reversal of the judgment of the Court of Queen's Bench, in Ireland, and the consequent liberation of that gentleman from imprisonment. For Sir Thomas's invaluable services on that occasion, it was stated amongst Mr. O'Connell's friends, that he declined the acceptance of any fee. On October 30th of the same year he was sworn a member of the Privy Council.

On the dissolution of Parliament in 1841, Sir John Campbell was appointed Lord Chancellor of Ireland, and Sir Thomas Wilde became his successor as Attorney-General. He now sought his re-election to the House of Commons at the hands of the citizens of Worcester, and was triumphantly placed at the head of the poll. On the change of the Government by the coming in of Sir R. Peel, Sir Thomas, of course, ceased to be Attorney-General.

The journals of the House of Lords record an application of the late Sir Augustus D'Este to be called to the House by the title of Duke of Sussex, as held by his late royal father; the great point of which was, however, the establishment of his legitimacy and that of his sister, according to the law of England. Sir Thomas Wilde was selected to conduct the application in the House of Peers. Great as must have been the anxiety of Sir Augustus D'Este in its issue, the anxiety of his sister must have been still

more intense: and, though the claim to the dukedom was not established, that lady gained what may be supposed to have been the dearest wish of her heart, in the entire vindication of her mother's character, and the demonstration that Lady Augustus Murray was the lawful wife of his Royal Highness the Duke of Sussex. The only bar to the claim of the dukedom was the Royal Marriage Act, requiring in such cases the assent of the Crown, which had not been given. It cannot, therefore, excite surprise that on Sir Thomas Wilde becoming a suppliant for the hand of Lady Augusta Emma D'Este, her accomplished and

opposition, but that his immediate return was secured by the most cordial concurrence of all parties. On the following Monday, however, he received from Lord John Russell an intimation that he was appointed, on the somewhat sudden death of Sir N. Tindal, Lord Chief Justice of the Court of Common Pleas. His return to town was therefore obligatory; but such was the confidence of the citizens of Worcester in their late member, that they *improvised* a candidate in the person of Sir Denis le Marchant, who, within twelve hours of his being known to them, even by name, was returned as the successor of Sir Thomas.



THE RIGHT HON. BARON TRURO, LORD HIGH CHANCELLOR OF ENGLAND.

eloquent advocate should be successful in his suit. The marriage was celebrated August 13th, 1845.

The change of policy on the part of Sir R. Peel in reference to the Corn Laws, and the consequent disruption of his Government, led, as is well known, to the return of Lord John Russell to power, who at once offered the Attorney-Generalship to Sir Thomas Wilde. This office required that he should again visit Worcester. The new writ was issued on a Friday evening, and on Sir Thomas reaching that city, he found that there was no

In the discharge of the functions of the Chief-Justiceship he continued, with important results to his fame, till the year 1850, when, in the month of July, after the Great Seal had been in commission for a few weeks, he became Lord High Chancellor of England, and took the title of Baron Truro. The doubts that arose in some quarters as to his adaptation to this high office could only be entertained in ignorance or forgetfulness of his past career. Independently of his vast practice from the very time in which he first entered on the legal profession, to the close of

his career at the bar, giving him the most intimate familiarity with all kinds of business, it may be questioned whether, during the last ten years of his forensic course, he were not as fully engaged

there is no doubt that his future judicial labours will give additional emphasis.

It has been justly remarked by Sydney Smith, that "the order



THE CASSOWARY, OR EMU. *(See Page 42.)*

in matters of equity as in those of common law. That Baron Truro is a most able and pains-taking Lord Chancellor is the concurrent and cordial testimony of the Chancery bar, to which

of human excellence is often inverted, and that great talents are considered as an excuse for the absence of obscure virtues." It is, therefore, truly gratifying to add that no such excuse has to be

pleaded for Baron Truro. He is surpassed by no man in the esteem, veneration, and affection with which he has been, and still is, regarded throughout his far-extended social circle; and the sketch of his career now given, though necessarily compressed within narrow limits, is a sufficient demonstration of the elevation which may be obtained, amidst the free institutions of our country, by men of talent employing their energies with unwearied perseverance, and especially sustaining their exercise by high moral worth.

NATURAL HISTORY.

THE CASSOWARY, OR EMU.

The bird in our engraving is the Cassowary of New Holland, or, as it is commonly called, to distinguish it from the cassowary of India, the *emu*. Although it very much resembles the former in external appearance, it differs widely from it in many important physiological characteristics. Its head is not surmounted by the horny top-knot which is found in the other, neither has it the two-lobed appendage hanging from its neck. Its beak is compressed or flattened downwards, and its size is much larger. It is not, like the Indian cassowary, ever found in any part of the Indian Archipelago, or, in fact, anywhere but in Australia, and particularly in the neighbourhood of Port Jackson and Botany Bay.

Its general form closely resembles that of the American ostrich: the toes are three in number, the head is lightly covered with crisped feathers, and the neck is in some places bare, showing the skin somewhat caruneulated; the bill is black, and the edges in some parts serrated; the wings are extremely short, and have no pinions; the plumage is of a brown, greyish colour, and is composed, pretty uniformly over the whole body, of a sort of long thin feathers, furnished with short hair down to the extremity. The young ones are covered with streaked down of a dirty white colour.

Very little is known of the habits of the bird. It lives upon young berries and tender herbs; and it is said, by those resident in the neighbourhoods which it frequents, to be very wild, and to run with as much swiftness as a hare. It is sometimes hunted for the sake of its flesh, which is said to taste like beef. At the present day it is becoming very scarce, and removing farther into the interior, so that it is now rarely seen in localities in which it was once very abundant.

A specimen of the Indian cassowary was placed, some years ago, in the Surrey Zoological Gardens. This variety also is now very scarce even in India, and very few have ever been domesticated. The habitual dulness of these birds, their disagreeable voice, and their hard, black flesh, offer no compensation for the cost of rearing and supporting them. The wild cassowary feeds on fruits, tender roots, and occasionally on the young of small animals. The tame are fed not only on fruits, but on bread, of which they consume about four pounds a-day. They run very swiftly, and often outstrip the fleetest horses. They resist dogs by dealing them severe blows with their feet. The male bird generally leaves his mate to the cares of incubation, which are required only at night, for during the day their three greyish eggs, spotted with green, are exposed to the vivifying effects of the sun, being slightly covered with sand in the hole where they have been laid. In captivity, their incubation lasts eight-and-twenty days. The first cassowary ever seen in Europe was brought by the Dutch in 1597.

The head of the Indian cassowary is almost bare, covered with a blnish skin, out of which grow a few scattered hairs. It is crowned with a conical helmet, brown in front and yellow in other parts; this helmet is formed by the swelling of the skull-bones. The whole length, from the beak to the rump, of the full-grown bird, is rather more than five feet.

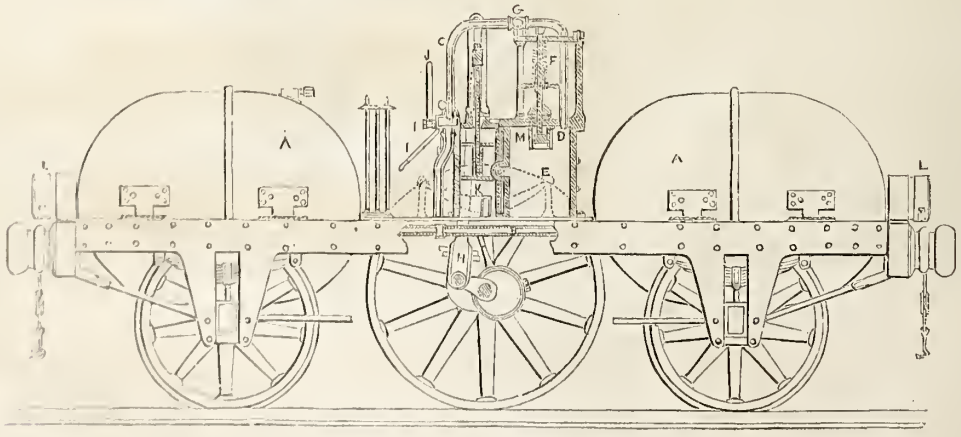
SCIENTIFIC INVENTIONS AND IMPROVEMENTS.

PARSEY'S COMPRESSED-AIR ENGINE.

On the attainment of the gigantic power of steam, and its application to locomotion, to a constantly-enlarging extent, it was natural to inquire if there were not some other agent whose energies might be similarly tasked, and that with certain advantages which have not been at present attained by steam locomotives.

One result arose out of an acquaintance with the *compressibility* of the air. The pneumatic condenser, for example, is a syringe, constructed on the same principle as the air-pump, except that the valves are disposed in the contrary order, that is, to open *inward* instead of *outward*; and by this instrument a large quantity of air may be forced into a given space. A pleasing illustration of its use may sometimes be seen. A globe of japanned ware is mounted on a pedestal, and from a jet at the upper part a fountain may be observed to play for a considerable time. The fact is, that water having been put into the globe, and a considerable quantity of air added, by means of a condensing syringe, the force of the air is exerted on the water, which makes its escape from violent pressure through the jet; thus the fountain is formed, and will continue to play till all the water in the globe is driven out.

A familiar instance of much greater power, yet having precisely the same origin and character, appears in the air-gun. A strong vessel of metal is constructed, into which air is forced,



PARSEY'S COMPRESSED-AIR ENGINE.

by means of a condensing syringe, through a small hole, with a valve opening inwards. The vessel, being then detached from the syringe, is screwed to the breech of a gun-barrel, and a trigger, adapted to the stock of the gun in the usual way, is constructed so as to be capable of opening the valve. The bullet, which should fit the barrel very exactly, so as to leave no windage, is placed near the breech. On pulling the trigger, the condensed air escapes through the valve, and rushes with violence into the barrel, propelling the bullet before it. The same supply of air in the vessel will serve for several successive discharges, but the projectile force becomes weaker after each one.

This fact has given rise to various calculations. Thus, it is estimated that the elastic force of ignited gunpowder is from 1000 to 2000 times greater than common air; it would therefore seem that air would require to be condensed upwards of a thousand times beyond its natural state, in order to exert the same propulsive force as gunpowder. But the velocities communicated are as the square roots of the forces; and consequently, if the air in the vessel be condensed only ten times, it will exert a force only equal to 1-100th of that of inflamed gunpowder, and communicate a velocity of 1-10th. One circumstance, however, adds considerably to the effect of the air-gun—for as the vessel is large in proportion to the cavity of the barrel, and the valve continues open a sensible portion of time, the ball is impelled *all the way* through the barrel with nearly the same force as at the first instant, and thus gains a decided superiority, so that air condensed only ten times in a vessel of considerable size projects a ball with a velocity not greatly inferior to that of gunpowder.

The force thus exerted led Mr. Parsey to the invention of his Compressed-Air Engine, the construction of which we shall endeavour to explain as briefly as possible. The engraving exhibits a side elevation of the carriage, with a section of the working parts of the engine. A A are the receivers of compressed air; B is the tube connecting the receivers from which the air passes up the supply-pipe, C, into the equalising cylinder, E, at D. At the top of the equalising cylinder, E, is a self-acting apparatus for adjusting the supply of air to the working cylinders, K K; this is done by setting the spring, F, so as to press down the valve, M, with a force equal to that at which the engine is to be worked—for example, 60 lbs. per inch. Whenever, therefore, the pressure in E becomes greater than that, the valve, M, is forced up, and partially closes the valve, G, thereby limiting the supply from the receivers, A A, and preserving a uniform pressure in E. The condensed air is conducted into the working cylinders, K K, through the sliding valves, in the same manner as steam, and is admitted or shut off by raising or depressing the handle of the stop-cock, J. Motion is communicated from the cross-head direct to the crank-axle of the driving-wheels by the connecting-rods, H H. L L, are for connecting the hose or pipe of the stationary reservoirs with the receivers, when a fresh supply of condensed air is required.

As, like steam, the power of compressed air can only be limited by the strength of the vessel in which it is confined, it is assumed to be equal to any labour required for locomotion. Mr. Parsey proposes to construct the receivers of his air-engine so as to sustain a pressure of from one to two thousand pounds per square inch, while the working pressure supplied to the engine from the equalising cylinder will be sixty pounds per inch; but even this may be increased, and the speed thereby varied from twenty to a rate equal to one hundred miles per hour. One charge will suffice to drive an engine, with a train of forty tons, fifty miles.

Supposing a sufficient power to be thus gained, a considerable saving would also be effected. A steam locomotive costs from £1,200 to £1,600, while an air-engine of equal power can be provided at from £700 to £1000. Nor is this the only economical item, for there is one in actual working, as well as in original cost. A much larger stock of steam locomotives is required than would be necessary of air-engines; the constant action of fire renders also the repairs of the former more frequent and costly than that of the others.

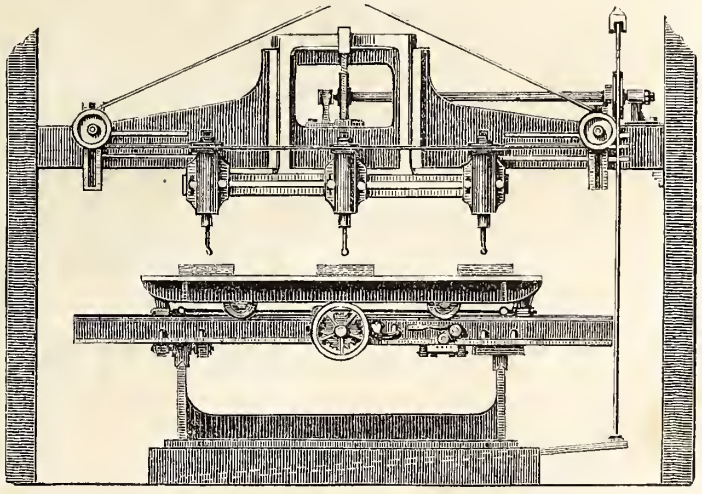
JORDAN'S PATENT MACHINERY FOR WOOD CARVING.

Wood Carving! at the mention of the words our mind is filled with images of sculptured walls and fretted roofs; recumbent knights and cherub faces with outspread wings; scroll and flower work on noble pillars, high above our head and lost in the dim distance; cunning handicraft in screen and choir, and stall and altar, and grinning grotesque heads on arch and capital. And amid these pictures of the fancy, even in the very centre of the gorgeous cathedral nave, rises the figure of Robinson Crusoe cutting another day-notch on the post beside his solitary home in the unknown isle—perhaps the very simplest form of wood carving ever recorded.

To trace the history of the art we should have to travel backwards to the very infancy of time—to gather from the traces found in tombs and among the buried cities of Pompeii and Herculaneum our little knowledge—to gaze with reverence on the many evidences remaining, in cathedral pageantry and ruined monastery, of the skill of they who decorated with loving hands those noble piles—to stand amid the remains recovered from desolated hall and storied mansion—to record the time when the wood-carver's art was made the vehicle of jest, and gibe, and ill-concealed rebuke in bas-relief and sculptured choir—to search out the memories of Grinlin Gibbon, and Bird, and Bailey, as they exist in scattered places little known—to speak of the efforts of self-taught artists among the bleak mountains and the sunny valleys of Switzerland—and to recal the memory of the numerous exquisite carvings exhibited in the Crystal Palace. With all the inclination to enlarge on these interesting topics, our space will allow us only to hint at a few of the sources from which the data of the wood carver's art may be derived; and so, ignoring for the present the existence of the many beautiful specimens shown in the Exhibition, by both Englishmen and foreigners, we will proceed at once to our subject—

WOOD CARVING BY MACHINERY;

and for this purpose we invite the reader to accompany us to the Belvidere-road, Lambeth, where are situated the works of the Messrs. Jordan.



JORDAN'S PATENT MACHINE FOR CARVING WOOD.—(*See next page.*)

Crossing Hungerford Suspension-bridge, we come into a neighbourhood but little known to the London pedestrian, where every building on the river side of the street is a manufactory, or a wharf, or a shot-tower, or a brewery. Entering a pair of large gates in the centre of a dull stone frontage, we find ourselves speedily in the workshop where was produced the exquisite specimen of carving from which our engraving is taken. This Belvidere-road is the original Pedlar's-acre, so called after the unknown personage who gave the land to the parish on condition

that his portrait should remain for ever in the parish church—a request most religiously complied with; and in the south-east window of St. Mary's Church, the mother church of the manor, is to be seen to this day a full-length portrait of the original donor, with his pedlar's pack, staff, and dog. No other record of him is in existence.

We must not forget, however, that we are no longer in the street. Around us are sufficient evidences of labour to drive all antiquarian lore clean out of our brain—whirring wheels, driving-bands from the distant steam-engine, a hundred men at work, and that peculiar odour which pervades all places where timber is being cut up. It is a busy scene, indeed; but for our purpose it will be sufficient to describe the operations of a single workman. It must be premised, however, that the art of carving by machinery is by no means intended to supersede the more valuable and finished works executed by hand. All that the machine invented by Mr. Jordan can do is, not to produce originals, but to copy and multiply designs. And in this it is so successful, that it requires a practised eye to detect the original from the copy. By the aid of a diagram, we will endeavour to explain the *modus operandi*. It will be observed that the machine is an ingenious modification of the turner's lathe, with fixed cutters. On the "bed-plate" and "floating table" is fixed the block of wood to be operated on. The motion of this part is horizontal; and beside it lies the pattern which is to be transferred to the yet rude block. The upper part carries the tracing and cutting tools, the motions of which are both vertical and horizontal. If the vertical part be placed in contact with the horizontal—that is, if the tools be made to act on the block, while the latter is moved about horizontally in all directions, a figure will be described on the latter corresponding to the direction of its motion; as if, in drawing with a lead pencil, the pencil were fixed and the paper moved about against it. Such, in simple language, is the principle of Jordan's machine for carving on wood.

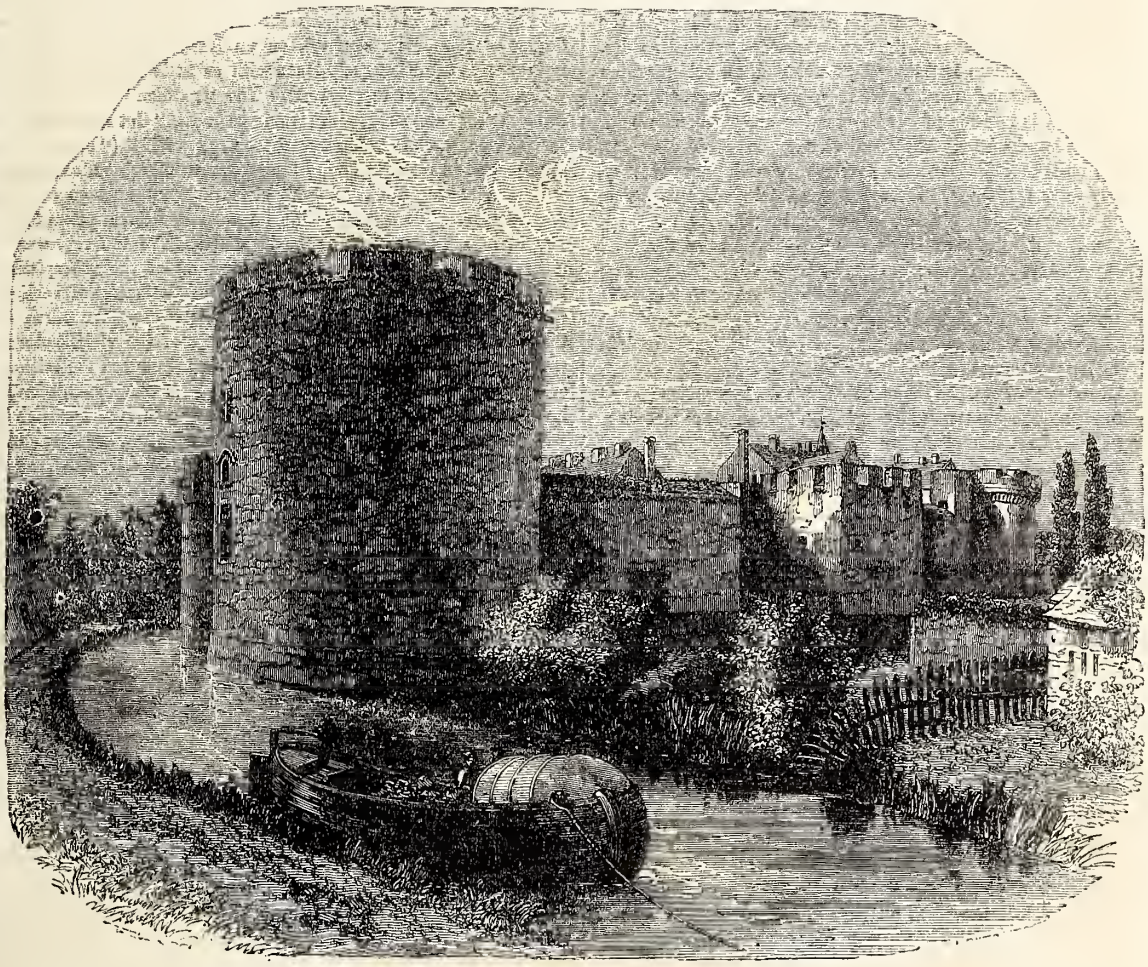


TROPHY OF GAME, &c., CARVED IN OAK BY JORDAN'S PATENT MACHINERY.

But to descend to particulars. The horizontal part of the machine consists of three castings—the bed-plate, which is a railway permanently fixed to the floor, and made perfectly horizontal; a carriage or frame running on this railway by means of four wheels, two only of which are seen in the engraving; and the horizontal table which carries the work, and is called the floating table. This last is furnished with four wheels running on the frame, but its motion is at right angles with the motion of the frame. The workman is thus enabled to move the floating table either laterally on its own wheels, or forwards and backwards by the frame, and thus bring any point in the floating table to any point in the same place with it. He moves the floating table from right to left with his left hand by means of the large wheel, and the table and frame are moved backwards and forwards with his right hand on a horizontal wheel in front, not here shown. The cutting-tools, which revolve freely on their axes, are supported by a bridge moving up and down by means of a bar. These tools are made to revolve from 5,000 to 7,000 times a minute, by means of an endless band driven by steam—seen, without the drum above, in the diagram. The model is fixed on the floating table under the tracer—in the centre of the diagram—and the block of wood, or other material to be carved, is placed under the cutter. Now it must be understood that the tracer, as it passes over every part of the model, guides or regulates the cutters in such a way as to produce a counterpart on the block of wood. By means of a pedal and counterbalancing weight, the workman moves the floating table about so as to bring every part of the pattern underneath the tracer; and, as the slide can only move vertically, whenever the tracer comes to a depression in the pattern it goes down, and the cutters make a similar depression in the block. In fact, the motions of the tracer and the cutter are identical. Thus, if there be an elevation in the model, it lifts up the tracer, and with it the cutters, which leaves an elevation of the same height in the blocks. And in this way the work proceeds—the tracer gliding silently over the pattern, and the tools cutting away the wood with a whirring noise on the blocks, till the work desired is accurately copied. The more minute the pattern to be imitated, the more delicate the tools employed; but it is nearly always necessary to finish the object by hand, as the finer parts are necessarily in a somewhat incomplete state. Where much undercutting is required, various modifications of the machine are employed. These consist either in turning the work round, so as to get at all the parts in succession, in using crooked tools and tracers, or in fixing the wood to be carved between two centres, or chucks, on the floating table, and moving it about carefully, the better to enable the workman to overcome the difficulties of the pattern. In this way the most intricate carving is accomplished; and, as a proof of the exquisite work which may be produced by these machines, it is only necessary to refer to the carvings in the House of Lords, which were all executed in the room in which we are now standing.

Previously to Mr. Jordan's invention—for which he received the gold medal of the Society of Arts, in 1847, "for inventing, arranging, and bringing into successful operation, such machinery as was capable of producing, or assisting in the production of, every kind of carving, so as accurately to copy any solid form which the mind and hand of the artist can conceive and execute"—there were in existence other, but less applicable, machines for carving in wood; but their want of exactness and economy in use prevented their ever being brought into successful operation. The only analogous invention is that of Mr. Cheverton, for producing in miniature copies of full-sized portrait models. Its precise operation is unknown, but its products are admirable. Of the utility of Messrs. Jordan's machine for carving there can be no question; and even on the score of its supposed injury to original works, no really tangible arguments can be produced. It copies, not invents, and its products may therefore be considered, with regard to the originals from which its designs are taken, to stand in the same light as the engraving does to the painting. It brings within the reach of the many copies of those famous works of art—for carving in wood may be said to stand next to sculpture in its relation to the fine arts—which, from their scarcity and high commercial value, none but few can ever hope to possess.

FORTRESS OF HAM, DEPARTMENT OF SOMME, FRANCE,



THE SCENE OF THE IMPRISONMENT OF LOUIS NAPOLEON, CHANGARNIER, LAMORICIERE, AND OTHERS.

We usher in no startling novelty—we propound no dazzling paradox—when we state that strange indeed are the vicissitudes of human life. The wheel turns round, and the beggar of to-day becomes the Crœsus of to-morrow. History is but a tale of revolutions. We see a king, the heir of a hundred kings, seated on an imperial throne; around him all is still and calm; flatterers speak with honied phrase. Suddenly the scene changes, and he is immured in a dungeon, or lays down his head upon the scaffold, or dies an exile in a foreign land. Sometimes the case is altered—the prisoner changes place with his gaoler; from the dungeon steps forth the occupant of the vacant throne. We have recently seen an illustration of this old truth in France. Louis Napoleon, but yesterday the prisoner of Ham, now sways the sceptre kingly hands tried in vain to grasp. In the halls where the Bourbons stood in their power and pride he alone is lord—but we need not dwell on so strange a spectacle; our readers for themselves can "point the moral and adorn the tale." We aim simply to describe the fortress from whence Louis Napoleon has worked his way to "a more than kingly crown."

The country traditions of the department of the Somme, in which the fort stands, attribute its erection to Louis de Luxembourg, towards the latter part of the fifteenth century. The year 1470 is generally supposed to be the date of the completion of the fort. On its walls one would look in vain, however, for the arms of Luxembourg, its reputed founder, or, at least, restorer. One would find, in lieu of them, the initial letter of the Christian name of Jeanne de Bar, only daughter of Count Robert de Bar; and this letter is in every instance placed between two girdles, a token that the device related to an unmarried lady. This lady, the heiress of the counties of Soissons and Marie, and of the lands of Ham, married Louis de Luxembourg on the 16th of July, 1435, and brought him the splendid dowry we have mentioned.

These circumstances not only prove that Louis was really not the builder, or even the restorer, of Ham, but would seem to show that the fort was already ancient in his time.

The oldest portion of the interior is evidently the building appropriated as the residence of the commandant or governor of the place. This part was built by order of the Duke of Orleans, brother of King Charles VI.; and there are letters patent, or royal, dated May 22, 1404, which *confirm* to that prince the possession of the lands which he had purchased of Mary de Bar, and permitted him to hold by right of peerage the counties of Soissons, Ham en Vermandois, &c. The Castle, situated in the midst of a quagmire or morass, is composed of four round towers, built at the angles of an oblong quadrangle. These towers are connected by very lofty walls, armed with loop-holes and other provisions of defence, which rendered the place a formidable fastness in the fifteenth century.

Two other towers of square form were interposed amid the round towers, and commanded the two entrances at opposite sides. One of these entrances is now walled up, and the bridge which led to it has been destroyed. The principal tower, with an Eastern aspect, is imposing from its massive and ponderous bulk. It is about a hundred feet high, and as many across in diameter. Its walls, built of soft stones, lined exteriorly with paving stones, are nearly forty feet thick. There are three storeys in this tower, and each storey consists of a large hexagonal room.

In the lowest storey are seen, in the thickness of the wall itself, twelve very narrow and very long cells. These were dungeons destined for the safe immurement of prisoners; and the word immurement is indeed singularly appropriate, since the captives were here not only surrounded by walls, but lodged in the very heart of a wall.

On the entrance-gate, the Constable, Louis de Luxembourg, had had engraved the motto "*Mon mieux*" (my best); meaning, perhaps, that in a fall of fortune this place would furnish him with the best alternative for which he could venture to hope. The gutter-spouts of this tower are extremely singular, being sculptured into all sorts of wild fantasies.

After the death of Luxembourg, his widow carried this property into the family of Vendôme, by her second marriage with Francis de Bourbon in 1487. Her son, of the same name, was born there in 1491. It was he who was afterwards taken prisoner, along with Francis the First, at the Battle of Pavia. Subsequently the same nobleman became one of the principal companions of Antoinette de Bourbon, grandmother of the celebrated Duke de Guise, who reconquered Calais from our own forefathers, after it had been an English dependency for a hundred years.

Towards the end of the fifteenth century the English made an unsuccessful attempt to storm and reduce Ham; but it was conquered by the Spaniards, sixty years later, in 1557. Some Scottish adventurers formed part of the garrison on that occasion. Philip the Second of Spain opened a breach in the tower and curtain, which our illustration represents. In three days that King, who besieged the place in person, had thrown more than two thousand cannon-balls against the eastern tower. Two years afterwards Ham was restored to France by treaty.

After having passed successively through the possession of the families of De Coucy, De Bar, Luxembourg, Vendôme, and Navarre, Ham at length became crown property under Henry the Fourth. For more than a hundred years it has served as a state prison. Among its captives have been the Count de Marbœuf, Lautrec, and Mirabeau; the Republicans, Bourdon, Charles, Duhem, Choudieu, Victor Hugues; the Royalists, Vibray, Montmorency, Choiseul, Polignac, &c.; some Spanish lawyers, cardinals, and priests, under the Empire; the Captain of the Medusæ, under the Restoration; and, in 1836, the signers of the *ordonnances*, Peyronnet, Polignac, &c.; then the Duchess de Berry and Louis Napoleon.

But still later historical associations are connected with Ham. When Louis Napoleon effected his *coup d'etat*, once more its walls opened to the reception of great men. In France, it seems, there are four state fortresses. The greatest number were conducted to the cells of Mazas, by many degrees the most uncomfortable of the four—so bad, indeed, as to make transportation even to Mont Valerien or Vincennes, much more to Ham, a boon for which to be thankful. At Mazas the representatives were kept for several days in profound secresy, seeing no one, and allowed no other books than those accorded to ordinary prisoners, such as the "Imitation de Jesus Christ" of Thomas A'Kempis, the "Livre des Frères," and other volumes from the "Jesuits' Library for the Million." The cells at Mazas are furnished with a hammock, which is taken down every morning at a stated hour. In consideration of their being "Deputies of France," however, the representatives were allowed to keep their hammocks suspended as long as they pleased, and to slumber *ad libitum*. At the end of a few days, moreover, instead of being deprived of light, like the other prisoners, at the regular prison hour, they were allowed to purchase their own "bougie." Their food was the prison diet, with the liberty of purchasing something different, if not better, at the "cantine." Their meals were brought on tin dishes, with the appendage of wooden spoons, so untempting to the eye that one of the representatives recently set free declares that during the fifteen days of his imprisonment he invariably ate with his fingers—"comme un sauvage, ou un Kabyle." The representatives were turned out of Mazas with as little ceremony as that which accompanied their arrest. The "gardien" of the prison came to them and said, with laconic coolness, "Get ready, put up your things, you are going down into the 'greffe'" ("bureau," or office); and in reply to their demand for what reason, exclaimed with perfect sang froid, "I don't know, but you must go down." At the "greffe" an official addressed them, "I have orders to set you at liberty; go out by this door." Each of the representatives was then conducted to the threshold of the inhospitable fortress, embarrassed with his luggage, in the midst of soldiers and "agens de police," who found ample subject for mirth in their grotesque situation. As an instance of the vicissitudes of sublunary affairs, M. de Tocqueville, who introduced the cellular system of imprisonment into France, and M. Chambolle, who so long and zealously defended Mazas from the attacks to which it was subjected, were both enabled to weigh, by personal experience, the advantages of the system they had advocated. For the future it is probable they will be less lavish of their praises.

At Ham nearly similar treatment seems to have been pursued towards the state prisoners. Not only were they not permitted to communicate with anybody outside the prison, but they were completely separated from each other, and their keepers were enjoined to observe perfect silence towards them. Every other accommodation, however, was granted them consistent with their safe keeping. After having been detained in solitary confinement during ten days, they were allowed to meet and converse together. Their friends and families were likewise permitted to visit them. The following prisoners still remain at Ham:—Generals Changarnier, Bedeau, Lamoricière, Le Flo, Colonel Charras, and M. Baze. They all dine together, and are waited on by non-commissioned officers, who treat them with the greatest respect. The wives of Generals Lamoricière and Le Flo and M. Baze share the captivity of their husbands, and by the affability of their manners and the charms of their conversation beguile the tedious hours of captivity. Madame Le Flo has had the misfortune to lose one of her children since her arrival at Ham. General Changarnier, whose cold and sarcastic stoicism presents a strong contrast with the impetuous vivacity of Colonel Charras and the energetic ardour of General Lamoricière, has resumed, notwithstanding his imprisonment, that impassive character and that immobility which have distinguished him during his public life. He speaks in short sentences, and it is always difficult to discover the secret idea which occupies that grave and serious head. Generals Changarnier and Lamoricière occupy the same apartment. The latter, with that rapidity of intelligence which distinguishes him, very quickly comprehended the bearing and the character of the act of the 2nd of December, and he readily resigned himself to a fact which has been confirmed by force. Colonel Charras appears to regret bitterly the course pursued by the Republican Opposition during the last sittings of the Assembly. He admits the enormous fault committed by the Republican party in allying itself with Socialism, the defeat of which produced by a movement of irresistible re-action the fall of the Republic itself. None of the prisoners is so dejected as M. Baze. He fears that he is more compromised than the others, in consequence of the documents seized at his residence. M. Baze is not possessed of any personal fortune, and he dreads that he may be reduced to indigence in case

of banishment from France. General Bedeau has, it is said, assumed the entire responsibility of the documents discovered at M. Baze's lodgings. It was General Bedeau who caused those decrees to be prepared and printed, and he is astonished that anybody should suspect his military honour of conspiring against the chief of the Executive Government, nor do the documents seized demonstrate in the remotest manner the existence of any such conspiracy. General Bedeau's reputation, moreover, for high honour and the purest morality, is a sufficient guarantee for his innocence. It is to be hoped, therefore, that now that the President of the Republic has secured 7,000,000 votes, he will order the release of those distinguished captives.

THE MARINE OR WATER TELESCOPE.

It consists of a tube of metal or wood, of a convenient length, to enable a person looking over the gunnel of a boat to rest the head on the one end, while the other is below the surface of the water; the upper end is so formed that the head may rest on it, both eyes seeing freely into the tube. In the lower end is fixed (water-tight) a plate of glass, which, when used, is to be kept under the surface of the water. A convenient size for the instrument is to make the length three feet, and the mouth, where the face is applied, of an irregular oval form, that both eyes may see freely into the tube, with an indentation on one side to facilitate breathing, so that the moisture of the breath may not be thrown inside of the tube. Handles for holding the instrument are to be affixed to each side. The glass at the extremity of the tube should be surrounded with a rim of lead, one fourth of an inch thick and projecting forward three inches, so as to form a continuation of the tube. The weight of the lead serves both to sink the tube and in some measure to protect the glass. Holes should be made at the junction of the rim with the glass, in order to allow the air to escape and bring the water in contact with the glass.

The reason why we so seldom see the bottom of the sea or of a pure lake, where the depth is not beyond the powers of natural vision, is not that the rays of light reflected from the objects at the bottom are so feeble as to be imperceptible to our senses, from their passage through the denser medium of the water, but from the irregular refractions given to the rays in passing out of the water into the air, caused by the constant ripple or motion of the surface of the water, where that refraction takes place. Reflections of light from the surface also add to the difficulty, and before we can expect to see objects distinctly at the bottom, these obstructions must be removed. This is done to a very great extent by means of the water telescope; the tube serves to screen the eyes from reflections, and the water being in contact with the glass plate, all ripple is got rid of, so that the spectator, looking down the tube, sees all objects at the bottom, whose refractive powers are able to send off rays of sufficient intensity to be impressed upon the retina, after suffering the loss of light caused by the absorbing power of the water, which obeys certain fixed laws proportionate to the depth of water passed through; for as the light passing through pure sea water loses half its intensity for each 15 feet through which it passes, we must from this cause alone, at a certain depth, lose sight of objects of the brightest lustre. The freedom of the water from all muddy particles floating in it forms an important element in the use of the water-telescope; for these act exactly in the same way, in limiting our vision through water, as a fog does through air. In a trial made with the instrument on the coast of Scotland, the bottom (a white one) was distinctly seen at the depth of 12 fathoms; and on a black rocky bottom, objects were so distinctly seen at 5 fathoms under water that the parts of a wreck were taken up, the position of which was not known previous to its use.

THE LADIES' DEPARTMENT.

INSTRUCTIONS IN EMBROIDERY.

(*Continued from page* 32.)

Of all kinds of embroidery we intend giving specimens in such articles as may be most fashionable; and we therefore begin by furnishing our readers with the clearest possible instructions for each kind of work.

The first operation is to mark the design on the material to be worked, which is done by means of what is termed a *pounced* pattern; to prepare this, draw the design accurately on thick letter-paper, and then with a very coarse needle *prick all the outlines*, making the little holes at the distance of about one-eighth of an inch apart. Lay the material to be worked very smoothly on the table, and the paper pattern over it; place weights to keep them firmly down, and rub all the design over with fine pounce, so that every hole may be penetrated with it. The best instrument to use is a large flat stump, made of a roll of linen.

Should the material be white, a little finely powdered charcoal may be added to the pounce, as it does not soil the most delicate satin.

When the whole design is pounced, remove the paper, and trace over the design with a fine sable brush dipped in a solution of colour, mixed with varnish and spirits of turpentine. The colours used should be artist's bladder colours, and it is desirable to choose a colour that will show clearly on the material. If the embroidery be in one colour only, however, the same colour should be used to mark it.

This mode of marking is applicable to coloured embroidery, and braiding on any thick material. For marking a design on muslin or cambric, draw the pattern first on paper and ink it. Then lay it under the muslin, and trace the design with a quill pen, or a fine brush dipped in a solution of stone blue in thin gum water. This washes out very easily.

Should the halves or quarters of any pattern correspond (as in a sofa cushion, for instance), draw only *one half*, or *one quarter*, as the case may be, on the paper; fold the paper in two or four, keeping it very exact, and prick through all the folds at once. This ensures much greater accuracy than can be obtained by drawing the whole pattern.—*(To be continued.)*

POINT LACE COLLAR.

Materials.—Evans's Mecklenburgh threads, Nos. 80, 100, and 120; Evans's boar's-head cotton, No. 60.

Half the collar being given in the engraving, a perfect collar must be drawn from it, and lined with merino; then trace all the outlines in Evans's Mecklenburgh thread, No. 80. The design is to be worked from the diagrams of the stitches already given. All the stems and other parts marked *a* are to be done in 100 Mecklenburgh, *b* in 120, *c* in 60, *f*, 120.

Some modern point lace stitches, which are introduced as the Mechlin lace wheels, will be found in The Illustrated Exhibitor, No. 15.

The connecting bars are the Raleigh bars, which are also described in the same place, and are to be worked with Evans's Mecklenburgh thread, No. 100.

The edging is outlined with 80; the inner row of loops in a continuous line, the outer ones all separately, the ends being worked on in covering them with close button-hole stitches and dots at intervals, like those in the Raleigh bars. When the collar is finished, cut the thread at the back, and detach it from the paper, carefully picking out all the ends.

ANTIQUE POINT LACE STITCHES.

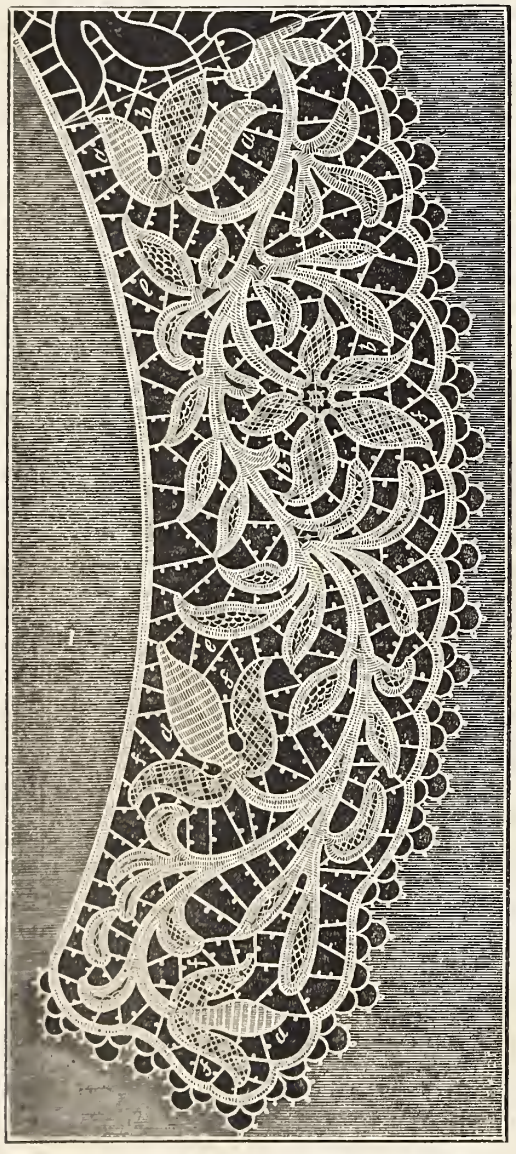
Having already spoken of the beauty and value of antique point lace, and the profitable employment it promises to afford to ladies of limited income, it only remains for us now to describe the manner in which it is worked.

We give diagrams of some of the stitches found in the most ancient specimens; few as they are in number, a combination of them in flowers and leaves affords a great and beautiful variety of lace; and at some future time we will add such as more elaborate specimens require.

Antique point lace is worked on a foundation of cambric braid, or thread. We will at present confine ourselves to the process used when the last-mentioned material is employed.

The pattern is drawn on pink or green glazed paper (which must not

be of the thinnest description), and is lined with a bit of merino or alpaca. It is then to have all the outlines carefully traced in thread, which is laid on and sewed over. The thread used for these outlines is manufactured expressly for the purpose, as is the case with a great proportion of the point-lace threads: it is called Evans's Mecklenburgh Thread. It is a rather coarse material, and a finer thread is used to keep it down. To do this, make a knot in the needleful of fine thread, bring up the needle where the outlining commences, and draw it to the wrong side again through the same hole, having crossed the coarser thread. The next stitch



POINT LACE COLLAR.—(*See page* 47.)

must be taken at the eighth of an inch from this one, and so on; taking care that every point and angle is properly formed. When the whole pattern is thus traced in thread, it is formed into the solid mass in which it afterwards appears by means of the stitches given in the accompanying diagrams.

(a) Foundation Stitch.—Worked with Evans's Mecklenburgh, No. 120. Take a bar of thread, parallel with the outline, and at the twelfth of an inch from it; over this bar work a succession of button-hole stitches very closely. When you come to the edge, twist it once over the outline thread, and take the thread across again to work the next row. Repeat.

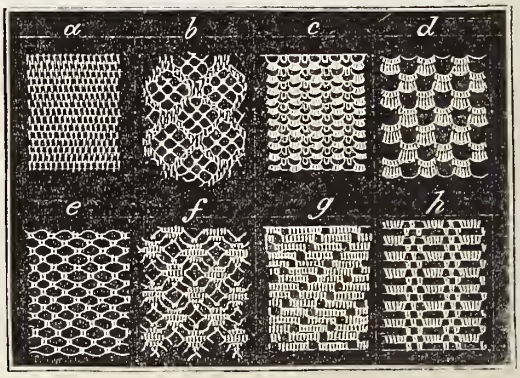
(b) Open Diamonds.—1st Row: 8 plain Brussels stitches close together, a small loop (which is made by missing the space of one stitch), 8 plain, 1 loop. Repeat.

2nd Row: 5 plain on the middle of the 8 plain, miss the two last of the 8, work 2 plain in the loop of the first row, miss two after next 8, work 5. Repeat.

3rd Row: 2 plain in the centre of the 5 plain, × 2 plain in the 1st loop, 2 plain in the next loop, 2 plain on the centre of the 5 plain, × repeat.

4th Row: 5 plain (the two last coming into the first of three loops), 2 plain in next loop, 5 plain (the two first and two last coming in loops), 2 plain in next loop, 5 plain (the two first and two last in loops). Repeat.

5th Row: 8 plain (the two last coming in the first of the loops of the last row), miss the two plain stitches in the last row, 8 plain (commencing in the second loop of the last row), miss the two plain. Repeat.



POINT LACE STITCHES.

(c.) Barcelona Lace.—1st Row: Take a button-hole stitch, long enough to allow 4 close button-holes to be worked on it. On the loop so formed work 1 tight button-hole stitch, take another at half the distance, and work another tight stitch on it. Repeat.

2nd: 4 close stitches on the long stitch of last row, 4 close stitches on the next, missing the intervening short one. Repeat.

3rd: Take a long stitch on the bar of thread between the first four and second four, × work a tight button-hole stitch on it. Repeat on the same bar. Take a stitch to the next bar, missing the 4 close stitches. × repeat.

The 2nd and 3rd rows, completed, form the lace.

(d.) Fan Stitch.—1st Row: 6 plain stitches, miss the space of six. Repeat.

2nd: 6 stitches on the last 6, miss the same space, 6 on the next. Repeat.

3rd: 6 plain in the loop, leave a long loop of thread, 6 plain in the next loop. Repeat.

4th: 6 plain on the last 6, 6 on the long loop. Repeat.

5th: 6 plain on the 6 over the long loop, miss to the 6 over the next loop. Repeat.

6th: Like 3rd.

Repeat the last three rows, working the lines of this pattern throughout, backwards and forwards.

(e) Spotted Lace.—1st Row: 2 plain Brussels, leave the space of two, 2 plain, leave the space of two. Repeat to the end.

2nd Row: 2 plain in every loop. Every succeeding row is like the second.

(f) Antwerp Lace.—1st Row: The same as first row in *b*.

2nd: 5 plain in centre of 8 plain, 2 plain in the loop. Repeat.

3rd: 2 plain in the centre of 5 plain, 5 plain (commencing and ending in the loops of the last row). Repeat.

4th: 2 plain in the centre of 5 plain of the last row, 5 plain (commencing and ending in the loops of the last row). Repeat.

These four rows form one pattern, and must be repeated as often as may be required.

(g) Escalier Stitch.—9 plain stitches, miss the space of two. Repeat.

2nd (and all future rows): × 9 plain (the two first worked on the loop), miss the last two of the 9 in the previous row. × repeat.

(h) Cadiz Lace.—6 plain stitches, miss the space of two, 2 plain, miss the space of two. Repeat.

2nd Row: 2 plain on the space, miss over the stitches of the last row, whether two or six; 2 plain in the next space, miss the next stitches. Repeat.

These two rows, repeated alternately, form this lace.

WORKS OF GREAT MASTERS.

THE VEGETABLE MARKET AT AMSTERDAM.—BY GABRIEL METZU (DUTCH SCHOOL).

Mrs. Jamieson, in her valuable work on the "Private Picture Galleries of Art in London," has divided painters into three sections. We have the Italian, Spanish, and French schools; the Flemish, Dutch, and German schools; and, thirdly, the painters of our own country.

In the accompanying engraving we present our readers with a specimen of the Dutch painters; and a favourable specimen, for Metzu was one of the first in his class. The Dutch painters, it may be proper here to state, are those who flourished in the Low Countries, particularly at the Hague, Leyden, Amsterdam, and Haarlem, towards the end of the sixteenth and throughout the seventeenth century; and here, as in the Italian schools, we find the earliest the *best*, and the latest the *worst* painters of their class. In the highest rank we place Jan Steen, Teniers, and Adrian Van Ostade, as delineators of plebeian life and character; Terburg Netzcher and Eglon Van Deer, next, as painters of elegant social life; Gerard Douw, Gabriel Metzu, and Franz Mieris, as the most refined portrayers of common life and domestic incident; De Kirghe and Vander Hayden, as imitators of purely natural effects of perspective and light. Hobbima, Ruysdael Adrian Vander Velde, and Cuyp, stand perhaps at the head of a long list of landscape painters. Paul Potter was confessedly the greatest cattle painter, as Wouvermans was the best painter of equestrian subjects, in the world; and for sea pieces merely,



Wilhelm Vander Velde and Ludolph Backhuysen are considered unrivalled. All these painters, says the accomplished critic to whom we have already referred, however they might differ in the selection of their subjects, and in the individual manner of treatment (easily discriminated by a little practice and observation), had taken that direction which had been given to the national taste and genius by the influence and example of Rubens. They were distinguished generally by two characteristics: first, the most lively and intense perception of natural forms and effect; and, secondly, the development of the faculty of colour. Some finished more, and some less, but all were exquisite imitators and colourists. Sir Joshua Reynolds has summed up their merits in his usual masterly style. "One would wish," he says, "to be able to convey to the reader some idea of that excellence the sight of which has afforded so much pleasure; but as that merit often consists in the truth of representation alone, whatever praise they deserve—whatever praise they give when under the eye, they make but a poor figure in description. It is to the eye only that the works of this school are addressed; it is not therefore to be wondered at that what was intended solely for the gratification of one sense succeeds but ill when applied to another. A market-woman, with a hare in her hand, a man blowing a trumpet; or a boy blowing bubbles; a view of the outside or inside of a church—are the subjects of some of their most valuable pictures; but there is still entertainment even in such pictures. However uninteresting their subjects, there is some pleasure in the contemplation of the truth of the imitation. But to a painter they afford likewise instruction in his profession. Here he may learn the art of colouring and composition, a skilful management of light and shade, and, indeed, all the mechanical parts of the art, as well as in any other school whatever. The same skill which is practised by Rubens and Titian in their large works is here exhibited, though on a smaller scale. Painters should go to the Dutch school to learn the art of painting, as they would go to a grammar school to learn languages. They must go to Italy to learn the higher branches of knowledge. We must be contented to make up our idea of perfection from the excellencies which are dispersed over the world. A poetical imagination, expression, character, or even correctness of drawing, are seldom united with that power of colouring which would set off those excellencies to the best advantage; and in this, perhaps, no school excelled the Dutch. An artist, by a close examination of their works, may in a few hours make himself master of the principles on which they wrought, which cost them whole ages, and perhaps the experience of a succession of ages to ascertain."

Such, then, is the Dutch school, in the opinion of the great teachers of art. We now come to speak of one of its brightest ornaments—Gabriel Metzu—who was born at Leyden, 1615. We know little—far too little—of this exquisite artist. Mrs. Jamieson says: "Of this elegant painter, I regret to say, that little is known, and that little is sad. He is said to have injured his health by too close application to his art, and to have died under a painful operation. His small conversation pieces are distinguished by a graceful feeling in the choice of his subjects, and he painted with a freer and more sparkling touch than either Mieris or Gerard Douw, though he did not finish quite so elaborately." It is said these artists were his models; yet there is a remarkable difference in the touch and pencilling between them. Metzu's pictures are held in universal esteem, owing to his exactness in drawing and delicacy in colouring. Pilkington says he approached near to Vandyke in his manner of designing the hands and feet of his figures; the countenances had usually infinite grace, a distinguishing character, and strong expression, and his pictures have abundance of harmony. His subjects were usually taken from low life, such as women selling fish, or fowls, or fruit—sick persons visited by the doctor—chemists in their laboratories—and scenes equally commonplace; but everything he did was well done. He was no slovenly artist, but the reverse. He spent much time on his pictures, which has occasioned their scarcity; and it is said that the Dutch, as much as possible, prevent their being carried out of the country. We much, however, question this statement. If history be true, much as the Dutch love art, they love money better. Still it is true that Metzu's paintings are but rarely seen. We believe we have but eleven of them in London: six in the Queen's Gallery at Buckingham Palace—three in the collection of Lord Francis Egerton, known as the Bridgewater Gallery—and two in the collection of the late Sir Robert Peel. The preponderance of Metzu's paintings in the Queen's collection is accounted for by remembering that that collection was formed by George IV., whose exclusive predilection for pictures of the Dutch and Flemish schools is well known. Some of these pictures have obtained high prices. "A Young Girl Selling Grapes," in Metzu's earlier manner, originally from the collection of M. Newman, of Leyden, now in that of her Majesty, was sold in 1806 for £252; "A Lady Caressing a Little Spaniel," in the Bridgewater Gallery, was purchased for £367; "The Music Lesson" was bought by the late Sir Robert Peel for 130 guineas; and "The Duet" was sold to the same eminent statesman for 450 guineas.

The value set upon Metzu's works has led to many imitations of him. Metzu commonly painted in a small size. The subject of his largest picture is a number of men and women in a mercer's shop. It is described as being excellent in the disposition, and correct in the design; the naked flesh being so soft and melting, and the colouring so clear, that it is admirable; the silks and stuffs are curiously and neatly distinct, and their different texture and folds represented with such truth and ease, that the painting affords the greater delight the more minute is the examination of it. The attitudes of the figures are well chosen, and everything appears so natural, that nothing seems wanting to its perfection. Another picture of Metzu, representing a lady washing her hands in a silver basin held by her woman, is an exquisite performance. But one still better is a lady tuning her lute. The face is beautifully formed and painted with the utmost delicacy, the flesh and life being imitated with uncommon force and spirit; and if the hands had been more correct, the whole would not have been unworthy of Vandyck. We have little more to say of Metzu. We have already intimated that in his devotion to art he sacrificed his life. Being severely afflicted with stone, he died under an operation he submitted to in the hope of cure. The date of his death was 1658; but if, as Campbell writes,—

> "To live in hearts we leave behind,
> Is not to die,"

Metzu still lives; for still admiring eyes hang on his works, and the lover of art gratefully preserves his name.

The picture we engrave—the original of which is preserved in the Museum of the Louvre—is esteemed Metzu's master-piece, and is valued at £1,750. Five other of his pictures adorn the walls of the Louvre. They are a "Portrait of Admiral Tromp," "A Soldier presenting Refreshments to a Lady," "A Cook peeling an Apple," "A Woman drinking Beer," and "A Chemist sitting at a Window reading."

But we have no space left for them, but must turn to the "Vegetable Market of Amsterdam." How graphically has Metzu preserved for us its characteristics! The women on the left chaffering, and one of them, with arms a-kimbo, evidently pouring forth a torrent worthy of Billingsgate—the gay youth whispering into the not unwilling ear of the Dutch maiden, who, listening to him, has forgotten altogether that she has come to market—the dog, availing himself of his master's neglect of him to make an attempt on the poor bird, who evidently prefers his room to his company—the broad elm casting down on all its leafy shade—and the sleepy adjacent canal. These the painter has eternized. He has given us a picture of Dutch life—still and phlegmatic—in the market-place, on 'change, or when, as at home, the Dutchman muses by the side of his silent *fram*, haply unconscious that as the clouds from his pipe wreathe themselves around his contented face, so his brain gradually becomes surrounded with fog. In these days of bustle and railroads and steamships, we look at such pictures as Metzu's, and wonder what manner of men and women were they who could thus calmly and quietly live, where we pant, and toil, and madly strive.

SCULPTURE.

OLIVER TWIST, BY MR. W. HUGHES, BOSTON, U.S. EXHIBITED IN THE CRYSTAL PALACE.

The highest manifestations of the sculptor's art are not always those in which he has embodied the most ambitious thoughts. Heroic forms and reproductions of the mythological fancies of an elder world are not necessarily those in which the genius of the artist are best developed. But it often happens that the most meagre thought becomes ennobled under the hand of him who throws his soul into the work. The poetic mind creates. And thus it is that some few groups recovered from the tomb of ages appeal with irresistible force to the universal heart of mankind. Who can gaze upon the Laocoon of Agesandir, for instance, without sympathising in the agony of the father struggling with his sons in the folds of the deadly serpent? Just as it is described by the elder Pliny, so this celebrated group exists at the present moment in the Vatican at Rome. And, if we pause in thought a moment, we can almost realise the rapture of him who, torch in hand, exploring the ruins of the baths of Titus, drew from its long concealment this glory of the world three hundred years ago.

From the very earliest times, and among the rudest tribes, there has ever existed a desire to express by outward forms the workings of the inward mind. And to this irresistible tendency we owe whatever is noble in the arts—the masterpieces of poetry, painting, and sculpture. Though the appliances varied, the end was the same—the pen, the pencil, and the chisel being indifferently employed in embodying and eliminating the undying thoughts of men. Thus traces of the imitative art are alike discoverable amid the ruins of past ages and in the rude efforts of the untutored savage. Wherever an altar was raised, or a tomb erected, there we are sure to find the marks of this universal feeling—a feeling shared alike by the inventor and the spectator.



OLIVER TWIST.—W. HUGHES, BOSTON, U.S.

The appreciation of what appeals immediately to the feelings, is the secret of the popularity artists and the imitative arts enjoy. Unlike the poet, who can carry his audience with him through a succession of incidents, the painter and the sculptor must seize the salient point of a story at a single moment of time; and if this be done successfully, and the incident be one which can be comprehended at a glance, a great work has been achieved, and another name added to the glorious list of those whose reward is immortality!

Our meaning will be at once apparent if the reader but takes the trouble to walk again, in thought, from end to end of that glorious building, and note down, in his mind's eye, the sculptures which most attracted him. They were not those to which the highest prizes have been awarded, wonderful as are the Amazon, and the Cour-de-Lion, and the Phryne, and the Glycera, considered as works of art; they were not even the Godfrey of Bouillon or the St. Michael;—but they were those in which the story was at once apparent—the "Eagle Slayer," the "Boy at a Stream," "Satan tempting Eve," "Virginius and his Daughter," the "Lion in Love," "Ishmael in the Desert," the "Greek Slave," "Oliver Twist," and the "First Step."

Not that we pretend for a moment that these were the most capital works in the Exhibition. By no means; for there were many others which, doubtless, take higher rank, and many in which the skill of the artist was more apparent; in the anatomical and historical details, for instance. What we contend for is, that the statues we have named were perfect in those attributes which appeal to, and can be understood by, all classes of spectators, the peasant no less than the peer. It may perhaps be said that if sculptors took lower ground, if they strove to illustrate the present rather than the past, such a tendency would affect the value of their productions as works of art. We think not. The ancients immortalised the poetry and legends of their age on pictured canvas and chiselled marble. Are not the works of modern times as capable of illustration? At any rate, it must be conceded that Shakspeare, and Walter Scott, and Byron, and Dickens have created characters on paper which would at once be recognised in marble; and that the incidents of domestic life are as well worthy realization as fancies taken out of the heathen mythology.

This last sentence brings us at once to the consideration of the original of our picture; which is a realization of one of Mr. Dickens' most popular heroes the poor orphan, Oliver Twist.

Mr. Hughes, of Boston, United States, is, we understand, the sculptor from whose chisel has proceeded this happy delineation of what is considered by many as one of the novelist's finest creations. The moment chosen by the artist is that in which the poor orphan, having been dropped by the burglar Sykes in his hurried escape, has made his way back again to Mr. Maylie's door. Wounded, fatigued, and wretched, the miserable lad has set himself down, apparently unearing whether he lives or dies. Poverty, privation, and the dark scenes in which he has been made to take an unwilling part, have almost dried up the well-spring of Hope within his breast, and he sits the picture of despair and hard reality. The figure, as we have intimated, belongs not to the highest class of poetical creations; but it has, nevertheless, the merit of realising to the fullest extent the picture drawn by our fancy of what the Oliver Twist of Dickens really was. Forlorn and neglected, the parish orphan of Mr. Hughes is a successful embodiment of the character as it exists in the pages of the novel. Though it obtained no prize, it is without doubt a very meritorious work of art,

MASSANIELLO, AND THE REVOLUTION IN NAPLES, IN 1647.

The disputes between France and Spain, in the seventeenth century, regarding the succession to the throne of Naples, plunged the whole of Italy in discord and confusion. The ascendancy was now obtained by one party, now by another, but all the loss and miseries of the war were entailed upon the unfortunate inhabitants. At length Ferdinand the Catholic, King of Arragon, succeeded in obtaining the mastery, and subjected Naples to his sway. The continual contentions of the crown, the aristocracy, and the people, during the following century, introduced into the country some semblance of a constitution. Assemblies or Parliaments were held from time to time to consult upon measures affecting the common welfare; but, at length, everything of this kind gave way before the feudal system, which was now for the first time established in full vigour. The natural consequence was, that the condition of the lower classes became still worse. The barons obtained unlimited power over their lives and property, and used it with merciless severity.

The king sought to conciliate the aristocracy by the sacrifice of the common people, but he soon saw the folly of a course of policy which plunged the kingdom into misery, and left it without defence against foreign invasion.

Under the Spanish rule, few, if any, assemblies were held. The administration of Naples was placed entirely in the hands of a viceroy. The power of the Crown being thus greatly extended, proportionately greater revenues were required to support it; and the weight of the taxes, and the vexatious mode of collecting them, were the cause of loud and general complaint.

In the year 1647 a tax was laid upon fruit brought into the city, whether fresh or dried; and, as this forms in Italy the food of the masses, a tremendous commotion was excited. Thomas Anello, by an Italian familiar mode of abbreviation usually called Massaniello, at that time in his twenty-fourth year, dwelt in a corner of the great market-place of Naples. He was a stout man, of good countenance, and of the middle stature, whose profession was to buy fish and retail them; and, in conformity with the meanness of his condition, usually appeared in a coarse shirt, a blue waistcoat, a mariner's cap, and with naked feet. Observing the general murmurs of the people, and while in the highest state of exasperation himself, he met a famous bandit, called Perome, with one of his companions, who asked him what ailed him. He replied, in great wrath, "I will be bound to be hanged, but I will right this city." Those whom he addressed of course laughed at him; but he contrived to make them see the possibility of an effective resistance, and they engaged themselves to assist him. He first applied to the owners of the fruit-shops, and recommended them to come the next day to the market, but to



MASSANIELLO.—FROM A PAINTING BY M. SPADARO.

decline to purchase from the growers any portion of their taxed fruit, and in the meantime instructed, and to a certain extent enrolled, many hundreds of the more youthful lazzaroni who frequented the market-place, teaching them to utter cries and to clamour in concert, as he should direct. Of this militia he made himself the leader; and at a signal being given by a fruiterer in the confederacy throwing his taxed fruit to the ground in a rage, and exclaiming, "God gives plenty, and the Government dearth," a tumult ensued, and a general cry of "No Tax" burst from the assembled multitude, who pelted the magistrate, sent to appease them, from the market-place. The immediate consequence was a large concourse of people of all descriptions, when Massaniello leaped upon the table of one of the fruiterers and harangued the crowd, comparing himself to Moses, who was sent to deliver the Israelites from the Egyptians, and to Peter, also a fisherman, who had rescued the world from the dominion of Satan. At last, lesson is salutary) the temper excited by these events did not cease until Naples was freed from the yoke of Spain.

One of the strangest parts of this strange affair was the connection of many of the great Italian artists with it. Salvator Rosa was thirty-two years of age at the time of the tumult, and Micco Spadaro, from whose paintings our engravings are taken, was thirty-five. Both of them, and all the other Neapolitan artists of the day, fought with Massaniello against Spanish domination. Amongst them were Anello Falcone, the intimate friend of Spadaro, Cadagora, Coppola, Porpora, the two Baccaro, &c. All these painters formed a distinct corps, known as the *Death Company*, and chose Falcone as their leader.

Massaniello had no more devoted adherents; and it must for ever form a subject of regret, that a revolution which owed so much to their courage had not a happier end. That it was called for, no one can doubt, for the political grievances must be great



MASSANIELLO AT THE HEAD OF THE POPULACE.

however, a treaty was completed, and he went in state to visit the viceroy, habited in cloth of silver, and mounted upon a lofty charger, with 50,000 persons in his train, who attended to his smallest sign with the most devoted obedience. On the following Sunday the capitulation was signed, and solemnly sworn to; and had Massaniello now retired, as he had declared his intention to do, he might have presented some claim to the title of a friend to his country; but, unhappily, he was induced to maintain his authority, and the usual effects of unlimited power began to display themselves in acts of caprice and tyranny, which at length were of so extraordinary a nature, that they were attributed to frenzy, arising out of that high state of excitement which he had experienced since the commencement of these transactions, during which he supported his unremitted exertions with little either of food or rest. The strong wines that he drank after his elevation are also supposed to have produced a species of delirium which unsettled his reason. Be this as it may, he was so capriciously tyrannical that a scheme was laid for his assassination, and as he fell, he only exclaimed "Ungrateful Traitors!" His head was thrown into one ditch, and in his body into another; but (and the indeed when the artists of a country abandon the brush and the pencil for the sword. If ever foreign domination was odious and oppressive, it was that of Spain over Naples. One of its viceroys, Count Monterey, was accustomed to say, "that as Naples must, one day or other, fall into the hands of the French, Spain should take all she could out of it while she had it." This maxim was acted upon by all who had anything to do with the administration. The people were fleeced without mercy for the payment of taxes imposed in the name of the king, and though these exactions reached to a considerable amount of yearly revenue, they were small when compared with the sums extorted by arbitrary violence. More than thirty thousand Neapolitan subjects were thus compelled to abandon their native country, and settle in the dominions of the Sultan. To the eternal disgrace of the Spanish Administration, they afterwards declared that, "while ten pistoles from each man were not sufficient to pay the salt tax alone in Naples, ten carlins paid all the taxes in Turkey."

The fall of Massaniello obliged the artists to fly from Naples on the approach of John of Austria, and the new viceroy appointed by the Spanish government. Salvator Rosa took refuge in Rome

and there found fame and fortune; the others dispersed; but what became of Spadaro is not known.

In our portrait Spadaro has evidently only taken a one-sided view of Massaniello's character. Although his friend and admirer, he has evidently made no attempt to give him any traits of nobleness or dignity. This is believed by many, that it was not the will, but the way, that was wanting. It was reserved to Salvator Rosa, who was also familiar with the features of Massaniello, to hand down to us whatever there was of force and gravity in the aspect of the popular hero: from Spadaro we have received only the comic and trivial.

This episode in the history of modern Italy is but one of the many glorious efforts which now and then appear, like words of power and beauty, scattered at rare intervals through the pages of a hideous tragedy. The vices of the Roman Empire seem to have left behind a heritage of curses and misery, which is to cleave to its descendants evermore. The centre of liberty, of literature, and art, has become the cradle of despots, and the haunt of vice, profligacy and murder.

The history of Naples is hardly instructive, and in many parts is utterly disgusting. Since the downfall of Rome it has been subjected in succession to a series of masters, nearly all of foreign extraction, and has distinguished itself not less by its vices than its patient submission to slavery.

Still, from time to time, might be observed some faint and short glimmerings of the spirit which animated the Roman plebeians in ancient times. Massaniello has furnished a striking instance of what may be achieved amongst the Italians by a courageous and determined man. Perhaps no finer materials ever existed for genius and strength to work upon. Ardent, passionate, enthusiastic, and vain-glorious, they have within them all the materials of revolution, but none of the sober and steady education which facilitates progress and civilisation.

A VISIT TO APSLEY PELLATT'S FLINT GLASS WORKS.

How many of the comforts we enjoy in our national and domestic character are due to accidental discoveries! Witness that recorded by Pliny, when some mariners, "who had a cargo of nitrum (salt, or perhaps soda) on board, landed on the banks of the river Belus, a small stream at the base of Mount Carmel, in Palestine, and, finding no stones to rest their pots on, placed under them some masses of the nitrum, which being fused by the heat with the sand of the river, produced a liquid and transparent stream." Some modern writers have been disposed to doubt the truth of this relation; but that the origin of glass is due to some such fortuitous liquefaction, is proved by the fact that imperfect forms of "glass" are usually found in the sides of almost every furnace where sufficient heat has existed to vitrify the bricks, and in the ruins of buildings destroyed by fire. "It might dispose us to a kinder regard for the labours of one another," wrote Dr. Johnson, more than a hundred years ago, "if we were to consider from what unpromising beginnings the most useful productions of art have probably arisen. Who, when he first saw the sand or ashes, by a casual intenseness of heat, melted into a metallic form, rugged with excrescences and clouded with impurities, would have imagined that in this shapeless lump lay concealed so many conveniences of life as would, in time, constitute a great part of the happiness of mankind?" Who, indeed! "And yet," continues the doctor, in his sententious but admirable way, "the first artificer of glass was employed, without his knowledge or expectation, in facilitating and prolonging the enjoyment of light, enlarging the avenues of science, and conferring the highest and most lasting pleasures: he was enabling the student to contemplate nature, and the beauty to behold herself."

It may be as well, perhaps, before speaking of the manufacture of glass—a material which owes its value entirely to the labour expended on its production, the sand, soda, and chalk being almost valueless of themselves—to glance briefly at

THE KNOWLEDGE OF THE ART AMONG THE ANCIENTS.

That in Egypt, the mother of nations and nursery of the arts, a kind of glass was made, is abundantly evident, from the fact of beads, and other vitrified objects, being discovered in tombs; and Sir J. G. Wilkinson adduces three distinct proofs that the art of glass-making was known to the Egyptians before the exodus of the children of Israel, more than three thousand five hundred years ago. There exist at Beni-Hassan and at Thebes rude delineations of glass-blowers at work; and, from the hieroglyphic descriptions of the paintings, it appears that they were executed in the reign of the first Osirtasen, who occupied the throne about the period above mentioned. Again, Captain Hervey found, at Thebes, a glass bead about three quarters of an inch in diameter, which Sir J. G. Wilkinson proves to bear the name of a king, in hieroglyphic characters, who reigned fifteen hundred years before the birth of Christ; and lastly, Winckelman, a very high authority in matters of art, is of opinion that the use of glass among the Egyptians was much more common than is generally supposed, not only for drinking vessels and sacred emblems, in Mosaic work, but even for coffins, but no specimen of the application of glass for the latter purpose has ever appeared among the Egyptian curiosities brought to this country.

That the Hebrews, from their long residence in the land of their captivity, should have become acquainted with the art of making glass, is extremely probable, but whether it was used by them for mirrors is not known. That glass was known to the inhabitants of Alexandria is undoubtedly true, and various specimens of coloured-glass vases, recovered from the buried cities of Pompeii and Herculaneum, are sufficient evidences of their inhabitants having attained a high degree of excellence in the art. No doubt appears to exist of the fact of glass having been used for glazing the windows of the wealthy in Pompeii and Rome. St. Jerome tells us that in his time (A.D. 422) windows were formed of glass; and about a century later, it appears, from the evidence of Paulus Silentarius, that the windows of the church of St. Sophia, in Constantinople, were glazed with glass.

Frequent mention of glass as a domestic and ornamental appliance appears in the works of the writers of this time; and we may justly infer that considerable skill was shown by the Roman and Grecian artists of the period. It is said that Nero gave 6,000 sestertia—a sum equal to £50,000 sterling—for two cups with handles, made of a superior kind of transparent glass; and Pliny tells us that vessels of crystal were so highly valued in his time as to have almost superseded the use of gold and silver for such articles in the houses of the wealthy. It is generally believed, however, that the introduction of lead into white glass is of British origin, none of the specimens of Roman manufacture in the British Museum, or elsewhere, possessing any traces of that metal, though coloured and enamelled glass in cups and vases appears to have been by no means scarce.

Of the art among the Venetians, abundant evidences remain; and for many years the supremacy of the glass-makers of that city was acknowledged in all the civilized world. The Venetian ball, long a puzzle to Englishmen, remains to tell of their ingenuity; and in Venice, to be a glass-maker, was to be a gentleman, *ipsâ arte*, for the art's sake. In the scale of early European glass-makers, the Bohemians rank next to the Venetians, whose productions they imitated with great success. Thus ornamental glass-ware—more especially those long drinking-cups, into the stems of which were enclosed twisted enamel tubes—has long been celebrated. Many specimens of this kind of work appeared in the late Exhibition. In the present day, Venice manufactures most of the glass beads and bugles for the African market; and the various glass-works in Bohemia afford employment to upwards of 30,000 persons. It is consolatory to think that in our day there is little necessity for the Venetian drinking-vessels, which are said to have discovered the presence of poison by instantly breaking into pieces—a poetical conception, referable, probably, to the lightness of the material, which caused it sometimes to break in the hands of the nervous poisoner.

Among the Chinese, the art of glass-making has been known for centuries. They excelled in the art of imitating gems; and it is said that it was scarcely possible to distinguish the real from counterfeit stones, so exquisitely were the latter prepared. To the Arabians—that singular and little appreciated people, who were once the carriers of the world—our ancestors are indebted for much of the knowledge they possessed of China; and it is curious that the art of glass-making is in much the same state in that vast empire in the nineteenth century, as it was when the Arabs first brought it into Europe. In the form of vases and false gems, rather than useful articles for domestic purposes, Chinese glass almost invariably appears.

According to Pennant, the art of making glass was known in Great Britain before the Norman Conquest; and certainly the secret of making glass-beads, amulets, and "snake stones,"—a kind of glass ring of various colours—was known to the Druids and Anglo-Saxons. Fragments of Roman glass have been frequently found in various parts of the country; and in 1847 there were discovered, in digging for the foundation of the episcopal palace of the Bishop of Oxford at Cuddesden, a pair of glass vases of a pale blue colour, and ornamented with waved lines, which are said to belong to the Saxon period, and of as early a date as the sixth or seventh century; though it was not till the middle of the seventeenth century that glass windows began to be common in England.

We have thus briefly traced the history of glass manufacture in Europe. From the Phœnicians—said to be the original discoverers—the art passed to the Crusaders, who transferred their knowledge to the Venetians in the thirteenth century, by whom it was for many years kept a profound secret. In the middle of the seventeenth century, the great Colbert introduced the blown glass mirror manufacture into France. As early as 1557 the manufacture of window glass was begun in Crutched Friars, London, and various articles in flint glass were soon afterwards made in the Savoy-house, in the Strand. In 1635 the art was greatly improved by the use of coal instead of wood in the furnaces; and in 1673 the first sheets of blown glass for mirrors and coach windows were made at Lambeth, by some Venetian artists introduced by the Duke of Buckingham. What must have been the state of society in Europe two hundred years ago, when glass windows and mirrors, carpets, gloves, and stockings, were known only to the very richest of the people?

The question now arises—which, perhaps, should have been asked before—

WHAT IS GLASS?

Glass—in French, *verre*—is a transparent, homogeneous, solid body, formed by the fusion of silicious (flint-like) and alkaline (fixed salt) substances. Glass is solid at ordinary temperatures, brilliant, always more or less transparent, and invariably brittle. "Many opaque substances are capable of assuming a form more or less vitreous, or glass-like—such as earths, some acids and salts, and metallic oxides (rusts). In porcelain we see a partial vitrification, for the granular texture is exceedingly fine, and a slight translucency is produced; but complete vitrification never results until after the fusion or melting of the ingredients; and we know of no means by which porcelain clay, or any other earth, in its simple state, may be melted. But when two kinds of earths are mixed together—or when a silicious earth is mixed with certain crystalline salts—perfect fusion may be produced, and a nearer approach to transparent glass be the result. Again, certain metallic oxides may be made to assume a vitreous form, and, when mixed with silex, to produce a glass possessing valuable properties. We may hence regard glass as resulting from the mixture or fusion of these three kinds of ingredients; and the purpose fulfilled by each may be thus understood:—the silicious substance is the vitrifiable ingredient—the salt or alkali is the flux, by mixture with which the silex becomes fusible—and the metallic oxide, besides acting as a flux, imparts certain qualities whereby one kind of glass is distinguishable from another."

There are four principal kinds of glass, known as crown, plate, common bottle, and flint glass, the base of all of which is sand, and the chief solvent soda or potash. The sand of the river Belus was for many ages esteemed the best for glass-making, and was consequently sought after and exported to many distant countries; but at the present time, the sea-sand from Alum Bay, Isle of Wight, and from the shore of Lynn, in Norfolk, with some found in Australia, are considered most fitted for the glass-maker's purpose. Flint glass, so called from calcined flints having formerly been used as the silicious material, is composed, according to the formula of Mr. Pellatt, of

Carbonate of Potash, 1 cwt.	Sand washed and burnt, 3 cwt.
Red Lead or Litharge, 2 cwt.	Saltpetre, 14 to 28 lbs.

Oxide of Manganese, 4 to 12 oz.

The more common or ordinary kinds of glass have little or no lead in their composition; and in the suitable quantities of the ingredients considerable difference exists among glass-makers.

The reader having gone thus far with us, we request the honour of his company to a visit to the flint glass factory of Messrs. Apsley Pellatt and Co., Holland-street, Blackfriars, London, where we shall endeavour to explain to him

THE METHOD OF MANUFACTURING FLINT GLASS.

Premising that our reader has never before had the honour of visiting a glass-house, it will be as well to conduct him through the various departments of these extensive premises—not in the order in which he would be most likely to see them, but in the routine actually observed in making glass.

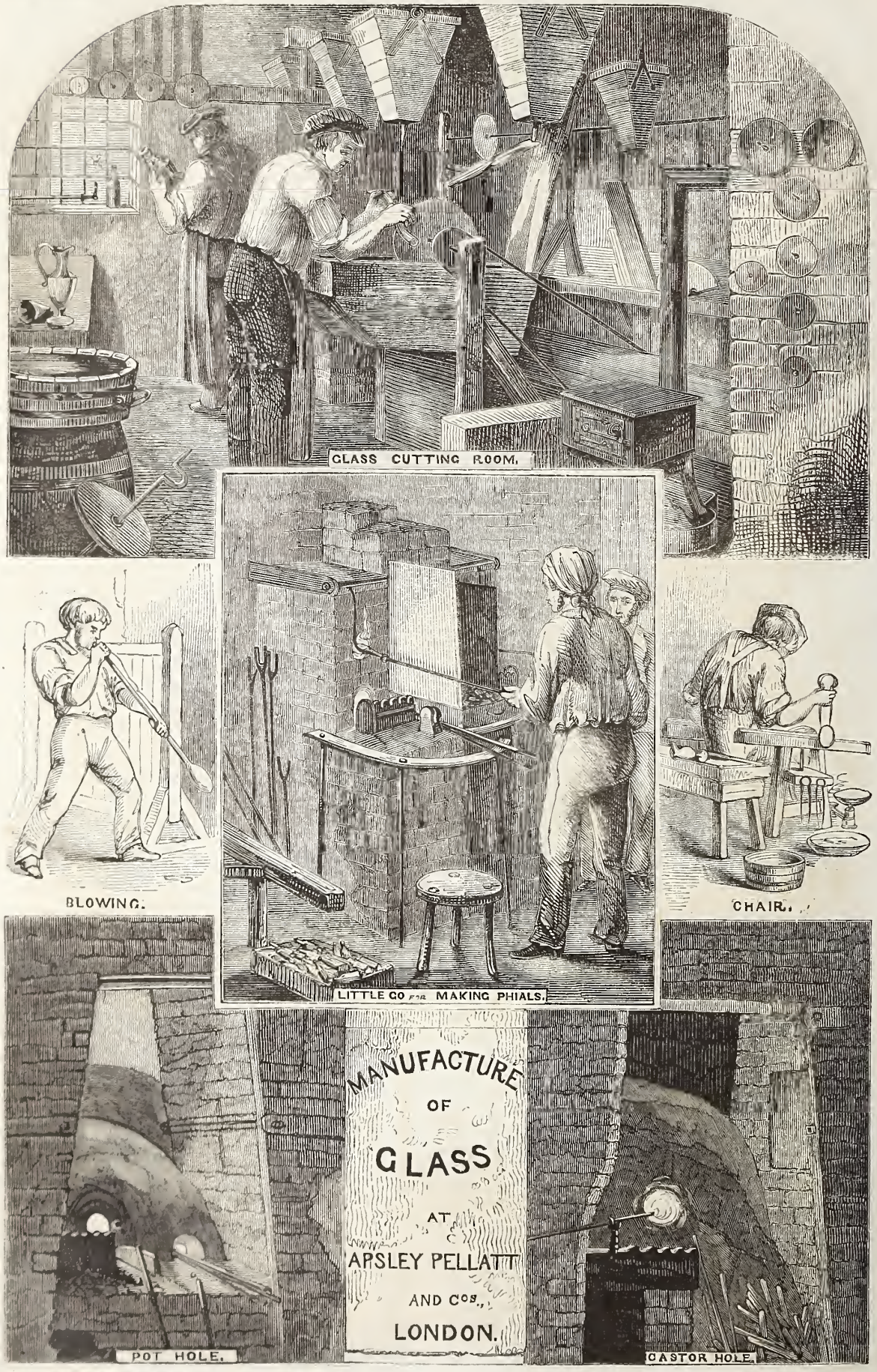
The factory is situated in Holland-street, so called from a woman of by no means the best character, who, in the reign of Charles the First, inhabited the old moated manor-house of Paris Garden, afterwards known as "Holland's Leaguer." It is not the cleanest neighbourhood in the world, but we must not mind that; it is the glass-house we want, not the street; and if we wish for information, we must not travel in shiny boots and white kid gloves. The glass factory, then, of Messrs. Pellatt comprises several buildings necessary to the art, and occupies about three-quarters of an acre. The various buildings consist of a receiving-house, where are stored the sand, cullet (broken glass), &c.; a horse-mill for grinding old melting-pots as one of the ingredients for making new ones; an apartment where the clay, ground or powdered, is kneaded and mixed for the making of the pots; another, where the pots are made; others for drying the pots when made; rooms for storing, washing, and preparing the sand and alkaline salts; a mixing-room, in which the various materials are weighed and combined; two coking ovens, or furnaces, for converting coal into coke; the glass-house, to which all these are subsidiary; the glass-cutting and engraving rooms; show rooms, warehouses, counting-houses, &c. Before the excise regulations were abolished, various vexatious rules had to be observed—rooms were locked up, of which the excise officer kept the keys, and so forth; but such is the force of habit, that much the same routine is followed now that the glass manufacturer is free to pursue his trade in his own way.

The pots in which the glass is fused are made of the finest Stourbridge clay, to which a certain proportion of old pots ground fine may be added. Great care is necessary in the making, drying, and baking of these pots, as upon their trustworthiness in the furnace depends greatly the success of the after process of glass-making. The pot, when filled, contains about 16 cwt. of fused glass—called metal, in the technical language of the workmen. Each pot weighs about a thousand pounds, though its height is not above three feet, by two-and-a-half feet in diameter. In shape it is cylindrical, with a round top and a flat base, having an opening near the top—in fact, it resembles, more nearly than anything else, those earthen vessels which the pigeon-fanciers fix against the walls of their houses as nests for the birds. The pots, when made, are allowed to remain for several months before they are baked, so as to become dry in a short space of time. When completely annealed, they are placed as soon as possible in their place in the fire. This is a very dangerous service, especially if conducted without proper mechanical aids. They who assist are exposed for a considerable time to the whole force of the furnace heat, and it is frightful to witness the sufferings of the workmen exposed to the radiation of the flames. Either in removing a broken pot, or in setting a new one, the whole breast of the fire must be exposed. Dr. Irvine is said to have caught his last illness, while imprudently assisting in this formidable operation.

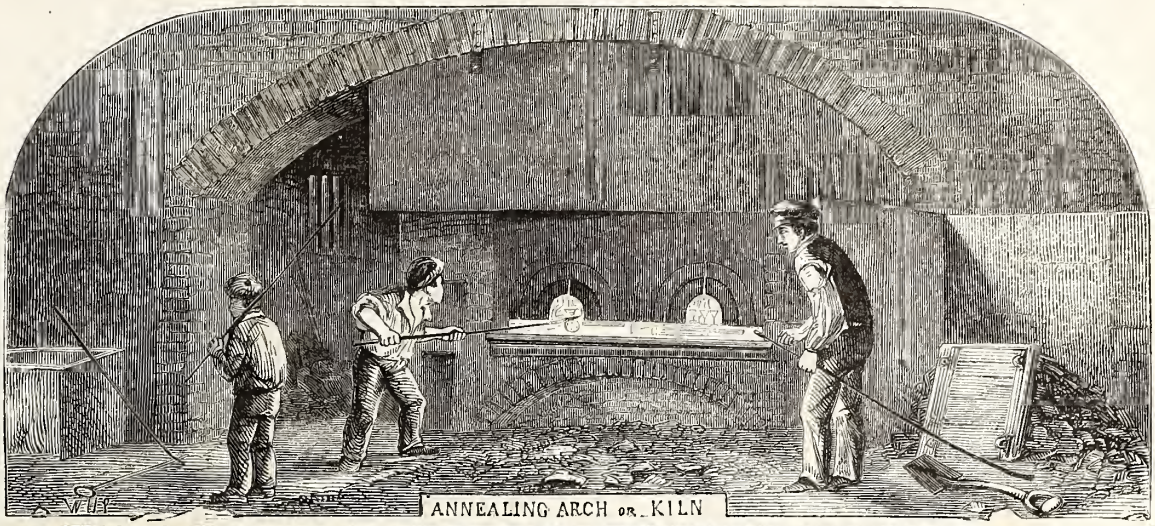
We now enter

THE GLASS-HOUSE,

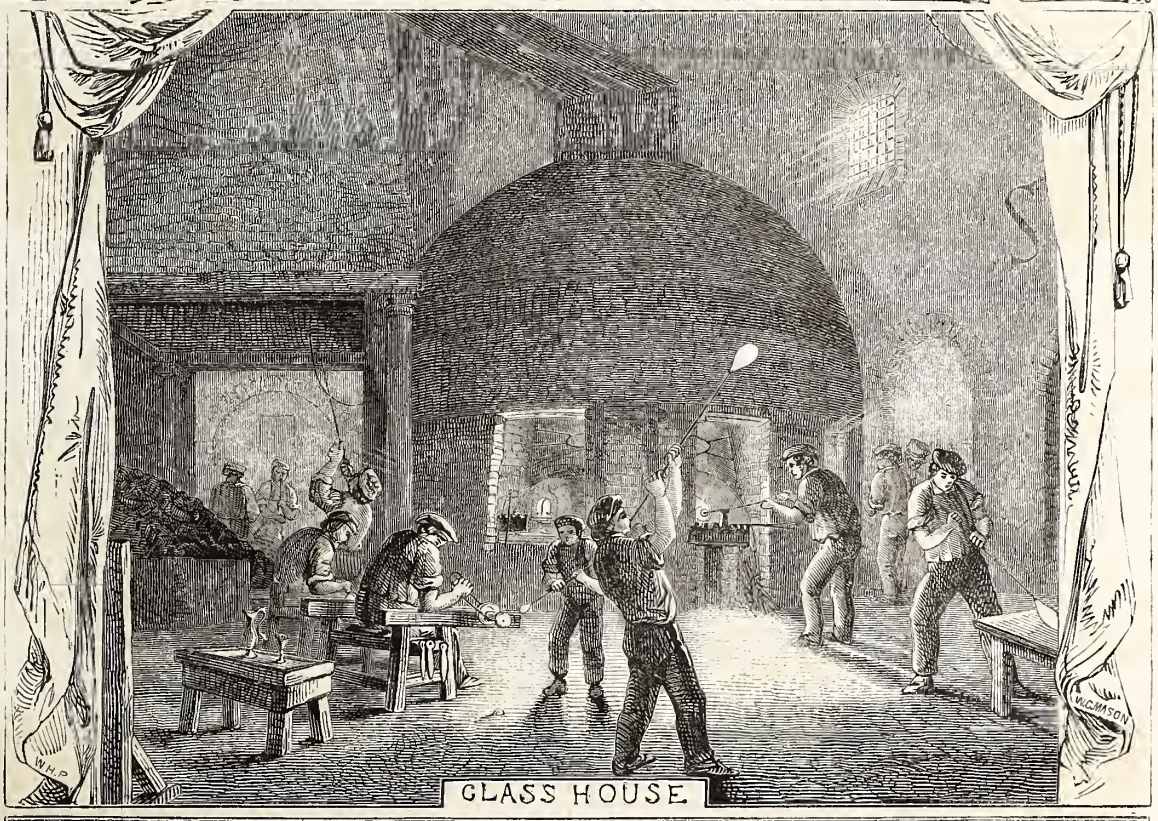
where the actual process of glass-making is being carried on. It is almost impossible to describe one's sensations on entering this building for the first time. In the ordinary way, the visitor is



DRAWN BY W. H. PRIOR. J. COWLAND, SC.



ANNEALING ARCH OR KILN



GLASS HOUSE.



WEIGHING-ROOM.

DRAWN BY W. H. PRIOR. W. G. MASON, SC.

generally shown the glass-house first. He is lost in wonder. He gazes around him upon the dingy walls, in the centre of which is the melting furnace, the chimney of which rises through the iron roof. He cannot reconcile the dimness of the place with the bright glow from the pot-arches, or the dull radiance proceeding from the annealing arch. He feels some little alarm as he sees dusky figures close beside him swinging about great masses of what appears to be red-hot iron. He feels, as he looks upon the vivid light from the opening furnace, as if a hot mask were placed upon his face, and he unconsciously puts his hand up to his brow. A warm perspiration envelopes him, and it is some minutes ere he can recover from his first emotions on witnessing the strange unearthly scene before him. Dark figures flit past him, each bearing a mass of living fire, and he almost regrets his temerity in venturing into the horrid place. But soon this impression wears off; and, at the voice of his conductor, he gazes with wonder and admiration at the operations of one particular set of workmen. But first let us describe briefly the nature of the furnace, the light and heat of which glares brightly on him from a dozen openings. There are two furnaces in this glass-house, but a description of one will suffice.

The furnace, then—the general form of which will be best seen in the engraving—consists of a circular dome, about fifteen feet in diameter and eighteen in height; the internal construction of which may be understood, if we suppose two basins inverted, a deeper one at the top. In the inner and shallower basin are contained the pots and the fuel of the fire. At various parts of the outer wall holes are left, to enable the workmen to get at the pots of glass; and the whole interior of the furnace is lined with fire-proof bricks. The fuel is laid on an iron grating in the centre, in connexion with which, and beneath the glass-house itself, are a series of passages, the purpose of which is to create a very powerful draught, which, passing upwards into the fire, keeps the fuel in an intensely white heat. A flint-glass furnace is so constructed that no heat or flame is allowed to escape from the chimney; and the draught must never be too strong to prevent a pressure of short and vivid flames from the "bye-holes" of the furnace, on each side the pot-mouths. The heat is reverberatory; that is, the heated air and flame is made to return from the roof to the pots, and thus a very high temperature is kept up within the interior. The furnace before us consists of nine large pots and three smaller ones, this size being considered the most economical in point of consumption and working power. The fuel employed is coke, made on the premises; and about 21 tons of coal are consumed weekly.

It sometimes happens that accidents occur to the furnace. The "siege," or bottom of the furnace, wants repairing—part of the crown of the arch breaks in—or an old pot breaks, becoming vitrified by the heat, and sticks to the bottom of the furnace. In these cases, a new pot must be introduced, the arch must be repaired, or the siege made strong again, without greatly hindering the progress of the work. Once lit, the furnace-fire of a glass-house is never extinguished. The withdrawal of an old pot, and the introduction of a new one, technically called "setting a pot," is a most fearful operation. The old pot has to be dug out of the furnace in the face of the raging flames, for which purpose the temporary brickwork in front of the arch is pulled down. About six or eight men, each with a bar in his hand about five feet long, like a javelin, steeled and sharpened at the end, rush forward in face of the fiery furnace, guarding their faces with their protected arms, and aim a blow at such of the irregular rocky incrustations of clay as adhere to the siege. This operation is repeated until the whole of the vitrified clay is removed from where the old pot stood. The spot is then repaired with clay and sand, and the new pot, at a white heat, is removed from the annealing pot-arch, and carried upon the end of a two-wheeled iron-carriage by several workmen, who carefully set or tilt it backwards into its proper position in the furnace. The opening is then bricked up as before, leaving only a small hole for the introduction of the gathering-iron. The fatigue and exhaustion of the men engaged in this arduous task may be well imagined, when it is considered that the furnace is kept to a sufficient heat to prevent the other pots in the furnace from cooling in the slightest degree; and that the operation sometimes occupies several hours. The melting-pots seldom last above three or four months, though it is not uncommon to patch up a broken one, which will work for several weeks. This patching is performed by means of exposing the pot to the air, when the glass, leaking out, becomes hardened sufficiently for use. The pot is so placed in the furnace that every part of it, except the mouth, is exposed to the flames. If you look into the mouth of the pot, you see before you a mass of fiery whiteness; and you draw back from the heat which the glass-maker faces day and night. This is the glass, or "metal," in a state of fusion.

Let us now examine the way in which

THE MANAGEMENT OF A GLASS-HOUSE

is carried on in respect to *time*. It is rather curious. The filling and working out of the melting-pots generally takes about a week. On Friday morning the mixed materials are brought to the furnace in wooden barrows, and there thrown into the pots, which hold about eighteen cwt. each. About four cwt. is thrown in at once; and, after allowing sufficient time for the melting down of the various charges, the process is repeated, till each pot is filled with fused metal. The complete filling of the pots occupies about fourteen or fifteen hours; but the metal does not free itself from air-bubbles and striæ in less than from fifty to sixty hours. When all the pots are filled, the mouth of each is securely clayed up, and the "founding" commences. For this purpose the fire is urged up to the greatest intensity during Saturday and Sunday—for the exigencies of the glass-maker's trade allow of no rest or stoppage; though it must be admitted that the work is so admirably apportioned as to leave nothing to be done on the Sabbath, but to watch the furnace, a service not requiring many hands. During the progress of the founding or melting, the metal is tested by withdrawing a small quantity now and then with an iron rod. This is called "taking a proof" of the metal. But, beyond this, there are certain infallible signs by which the *tiseur*, attendant, or stoker, may tell whether the metal is in a fit state for working; such as the whiteness of the flame exuding from the furnace on each side the pot, &c. In some glass-houses a vast quantity of scum rises to the top of the metal; but in the making of flint-glass, such is the purity of the materials used—little else but "virgin glass" being made—that very little waste accrues. The shorter the time of fusion the better; and the heat during the process of founding can scarcely be too great. Driven snow is not whiter than the burning coal in the centre of the furnace when it has reached its maximum of intensity. If the glass do not get sufficiently fine during the time allotted, or if it should become "coddled" or "gelatinous," it never will be fit for the finer work; and all that can then be done with it, is to ladle it into water, and make it into "oullet," for re-fusion with fresh materials.

We will suppose, however, that no accident of this kind has happened—and such accidents are of rare occurrence—and that we are standing in the glass-house on Monday morning, when the "blowing process" commences. To render what follows more explicit, it will be necessary to describe the tools required. First, then, is the glass-maker's chair, a "flat seat of timber about ten inches wide, each end being fixed to a frame connected with four legs and two arms, the latter on an incline." On the arms of the chair is fixed an edging of wrought iron, for rolling the blowpipe backwards and forwards with the fused glass on the end of it, thus causing the rotatory motion of a pole lathe; while the right hand with the pucellas gives the requisite form. The "marver" (a corruption of the French *marbre*, marble having been formerly employed) is a cast-iron slab with a polished face, placed on a wooden stand. Upon this slab the lump of glass is rolled to give it a regular outer surface, so that the result of blowing may be uniform in thickness of metal. The "pucellas" is somewhat like a pair of spring sugar-tongs, the prongs resembling the cutting parts of shears, but which are blunt instead of sharp. The pucellas is used for rubbing the outside of solid or hollow glass, and pressing it into a diminished diameter, at the same time elongating the parts by the chair-rotating process. This tool does a similar duty as the cutting-tool of a lathe, but instead of removing the chips, it simultaneously squeezes and lengthens. This tool is used in opening and widening the mouths of glasses, bowls, vases, &c. The "tongs" are used for laying hold of half-formed handles, &c., and generally to seize the glass in the process of making. The shears are strong ordinary scissors, and are used for clipping off the surplus metal from wine-glasses, handles, &c. The battledore, which is a square piece of wood on a short handle, is used to flatten the bottom of the vessel to be made. These,

with the "pontil" and blowing-iron, are the principal tools used by the glass-makers. The "ponty," or "pontil," is a solid rod of iron, used to support the glass while working, when the blowing-iron is no longer wanted. The blowing-iron is simply a tube, the size of which varies with the kind of work required.

(*To be concluded in our next number.*)

EXHIBITION OF THE INDUSTRY OF ALL NATIONS; ABOUT TO BE HELD IN NEW YORK.

This Exhibition, which it is proposed shall take place in New York early in the ensuing summer, having excited a deep and lively interest, not only in America, but in this country, we have much pleasure in presenting our readers with two views of the building in which the Exhibition is to take place. This we are enabled to do through the kindness of the Commissioner, Charles Buschen, Esq. Our engravings are from the original designs of Sir Joseph Paxton, a gentleman whose name is so intimately associated with the building in Hyde-park, which remains a gigantic monument of his enterprise and genius. The designs were presented by Sir Joseph, in the most handsome manner, to the managers of the New York Exhibition.

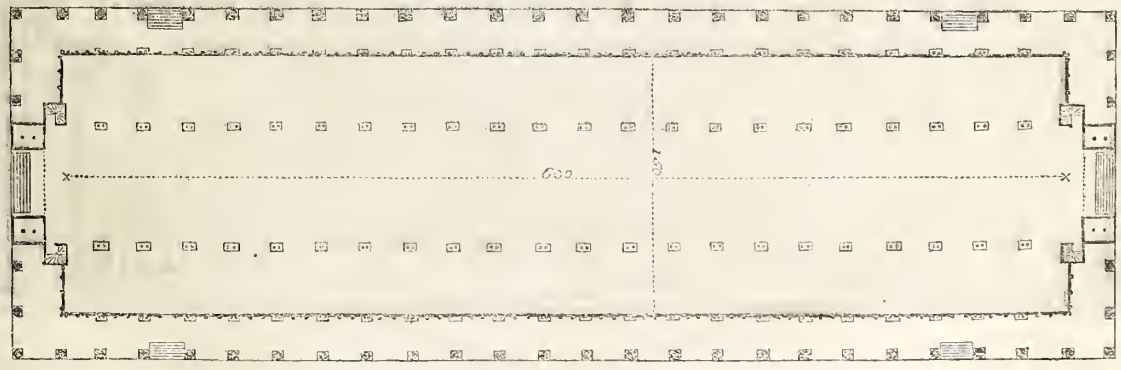
The form of the building is an oblong square, about 690 feet in length by 150 feet in width. It is to occupy an area of about one-third that of the Crystal Palace. Though presenting many features in common with the design already executed here, it possesses several original beauties. The materials proposed to be used in its construction are, for the most part, similar to those employed in the Great Exhibition, the difference being that *glass* is used to a much less extent, and the introduction of slates in the main roofs, for the purpose of providing against any superincumbent weight of snow, likely to occur in the more inclement seasons of the latitudes of America. The *exterior* is highly ornamental, having four towers, one at each angle, to contain the staircases leading to the galleries. The building is flanked by a raised terrace, approached by flights of steps, and returning at the ends by stone piers, surmounted by lights. The *tout-ensemble* of the exterior is light, elegant, and in good taste.

We are much pleased with the design for the *interior*, which is in every way tasteful and appropriate, but with a due regard to substantial construction. The compartments form a centre, and two side avennes. The main roof is carried by admirably-proportioned segment arches, springing from coupled columns, and rising to the underside of the tie-beams, the interior space forming elegant and appropriate spandrils. The side roofs are carried in a similar way, the arches springing from imposts inserted in the outer wall, a few feet from the ground. The outer and side roofs are further strengthened by strong purlins running the whole length of the building. The ends are lighted from fan-shaped windows, forming panels with circular heads, and richly-ornamented. Under these windows are the principal entrances. The upper roof *alone* is glazed, and partakes strictly of the character of the lower ones. Not the least beauty of the construction is the manner in which the side galleries are kept up, so as not to intercept in any way the admirable perspective of this beautiful composition. The estimated *cost* of the building is £20,000—a small sum in comparison to its extent, importance, and capabilities of accommodation.

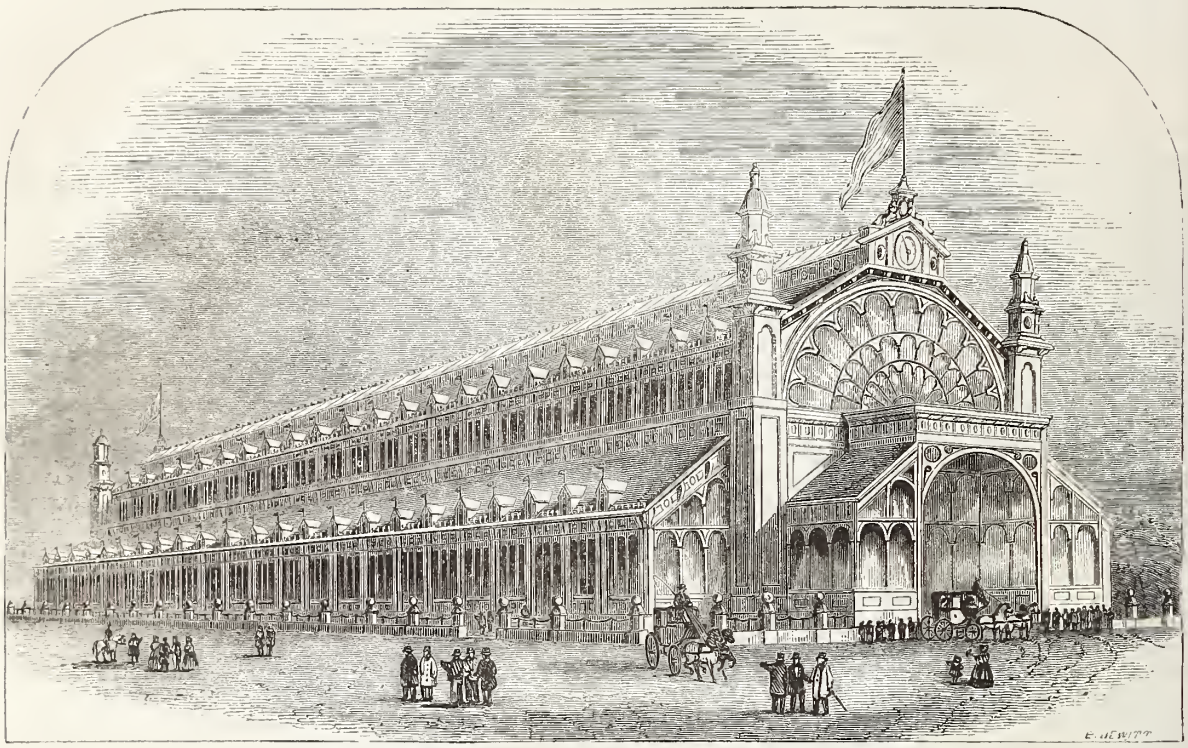
While the contemplation of these elegant designs will, we doubt not, produce feelings of admiration in all who behold them; the projected Exhibition, with its numerous associations, will tend to increase the good understanding which subsists between England and America. Hitherto, some feelings of discord have marred the harmony which ought to subsist between the great families of the Anglo-Saxon race. Their interests are one—their aims should be one. Both rejoice in a common civilisation and Christianity, and tongue. Last year, America came to our World's Fair, and took no mean place in that illustrious show, and now America invites the world to her shores, that it may better do homage to American enterprise and art. Great, we trust, will be the gathering. More even than ourselves the Americans are sons of labour—more than ourselves, therefore, can they recognise its dignity and blessedness, and worth. There, even more than here, the festival in honour of labour should be held. There, more than here, even, is the spirit of the age paramount. America has no dark past of iron tyranny to look at and to blush for. America has little to unlearn. In Europe we have worshipped the hero who has deluged the land with blood; the priest who, armed with the terrors of the next world, has seemed to himself so much of the good things of this. It is only lately that, in Europe, we have learned to honour the people by whom all that is great in the world's history has been achieved—who have bridged over oceans—who have removed mountains—who have planted deserts with busy life—whose works of art, lasting as the sun's glad light, or the air's balmy breath, proclaim what man, in his might and majesty, can do. In America it is otherwise.

We English must rejoice that America has imitated us. *Our* Exhibition passed off gloriously. We trust and believe that *theirs* will pass off equally as well.

As regards America itself, it is clear, in the knowledge it will disseminate, in the impulse it will give to the industrial arts, such an Exhibition as that proposed will be useful in the extreme. Nor will labour selfishly triumph alone. Peace and human brotherhood, and the soft humanities of life, will share in the honours of the day. Rightly did Milton sing, in immortal verse, of "the arts that humanise and bless mankind." The Exhibition will be a temple consecrated to Peace. As the men of one nation gaze upon the productions of another, they will learn that God has made of one blood all nations that dwell upon the face of the earth, and that, to encourage jealousy or revenge—to fan the flame of mutual hate—to let loose the hell-hounds of war—is forbidden by the common origin we all admit, and the common destiny we all obey. Our common brotherhood will again be owned and felt, and thus once more will be placed palpably before the world a type of that coming time which poetry has sung and prophecy foretold; when the lion shall lie down with the lamb—when war shall be banished back to its native hell—when earth shall bask once more in the sunshine of universal peace.



GROUND PLAN OF THE NEW YORK INDUSTRIAL EXHIBITION BUILDING.



THE GREAT INDUSTRIAL EXHIBITION BUILDING, NEW YORK.—DESIGNED BY SIR JOSEPH PAXTON.



INTERIOR OF THE BUILDING.

IVORY VASE, BY M. LOUIS LAUTZ.

The subject represented in this delicate work is the battle of the Franks, under Charlemagne, against the Saxons. It is taken from the picture by Offenbach — a veritable battle of the giants! In style and manner of composition it is alike remarkable. The varieties of expression, the details of costume in the figures, are given with great precision. The horses, maddened with the fire of opposition, have character and force in every muscle; and the whole composition is grand and life-like. Every figure is remarkable for grace and vigour, and the entire work may be said to be distinguished for fertility of invention, elegance of design, and delicacy of taste. It was exhibited at the Crystal Palace, and was admired by thousands.

The name of Charlemagne is to the French what that of his great contemporary, Alfred, is to us—a name to be honoured through all time. Before his advent, the Franks were a restless, ambitious, war-loving people, and nothing more. He it was who spread among them a love for the arts of civilised life; he curbed the rude, repelled the invader, encouraged the timid, and protected the weak. Succeeding to a crown and kingdom already famous by the intrigues and battles of Pepin and Clovis, the first efforts of Charles the Great were directed to the subjugation of the numerous hordes which surrounded him. For ages, barbarism had been preying on the vitals of civilisation—conquering, destroying, or blending with it. The amalgamation was not yet complete—the contest was not yet over—the victory of order over disorder was not yet accomplished; and thus it was that the fierce Austrasians of the Rhine must be restrained in their attacks on the more gentle Neustrians on the banks of the Seine. Thus it was that the Aquitanians, subdued by Clovis, and again risen in the might of wild, unregulated warfare, had to be kept within the bounds set apart for them. Thus it was that the Saxons —a formidable and warlike people, whose dominions bordered his own, and whose stronghold was not far from his chosen city of Aix-la-Chapelle—had to be kept down by the force of arms. Thus it was that the arms of the Franks were successfully turned against the Lombards, in Italy; the Arabs and the Saracens, in Spain; and the Basques and Gascons, who made common cause with their conquerors.



IVORY VASE.

Before the time of Charlemagne (A.D. 752—814), the Franks disliked dwelling in cities, and despised fortifications. They were of no religion, and considered war as the end and aim of their lives. But the efforts and example of this great monarch advanced civilisation and promoted Christianity within his kingdom; and his reign may be considered as the great epoch in European civilisation from which may be dated all subsequent improvements. Chivalry and virtue—and not incompatibly—in this reign often centred in the same bosoms. It was then that a brighter charm was thrown around the domestic hearth, and a higher standard of public morality was recognised than had ever before been witnessed. He also greatly encouraged commerce.

The particular action, in the thirty years' war waged by Charlemagne with the Saxons, which is here illustrated by the artist, is not recorded. Indeed, so frequent were the battles, and so obstinate was the resistance, of the Pagan enemies of France, and so like was one engagement to another in its conduct and results — fierce assault and obstinate encounter, followed by treaties neither party meant to keep, and the failure of which only led to renewed strife—that it would be difficult to single out any one battle from among the number, so distinguished was every one for feats of personal prowess and gallantry. And thus victory and defeat alternated, till, in the year 800, the Saxons were finally subdued by the arms of Charlemagne.

This latter year was distinguished by an eventful ceremony, which, though but a ceremony, had more influence on European policy than all the wars and all the victories of the preceding century. A fierce rebellion broke out in Rome, in the course of

which Pope Leo III. was taken prisoner, maltreated, and closely confined in a fortress; but he contrived to escape, and fled for protection to Charlemagne. With his wonted pity for the unfortunate, the monarch received the fugitive, and, leading him back at the head of a large army, reinstated him in the pontifical chair. On the following Christmas-day Charlemagne, with his whole court and an immense retinue—consisting of the flower of the French nation—attended mass in the Cathedral of St. Peter's. At the conclusion of the imposing ceremony the Pope advanced in procession to where the monarch stood, and, placing on his head a crown of gold, saluted him as Emperor and Augustus. Thus was the empire of the West restored in the person of Charlemagne. The Frank sat on the throne of the Cæsars. Nor was the ceremony to be considered a piece of mere idle pomp. It gave rights, and dignity, and power; and the magic of a name, the influence and authority of which is recognised even now, was spread abroad through all the world.

It would be idle to eulogise a man like Charles the Great. He was fitted for the times in which he lived. He possessed, in his own person, the characteristics of a hero and a statesman. Three hundred years had yet to pass ere chivalry was to shine out like a star on the western world; and yet Charles anticipated its spirit, and infused, in the heart of his people, a love of virtue and a high sense of honour. He was a patron of literature and the polite arts when the taste for both seemed to have been utterly lost; and in his reign society in France first assumed a state of real freedom. Hitherto but two classes had existed, the aristocracy and the serf; henceforth a third appeared, in which the wealth of the first and the sinews of the last were united. Full of years and honour, Charlemagne died in the year 814, and was buried in the famous cathedral he had founded at Aix-la-Chapelle.

This hasty sketch will sufficiently explain the enthusiasm with which the name of this great monarch is ever mentioned to the French. Poets, painters, and artists of all after time have only been too proud to record the events which distinguished this remarkable age.

THE LADIES' DEPARTMENT.

LONG PURSE (IN CROCHET).

Materials.—6 skeins of garnet-coloured purse-silk of the finest size; 4 skeins of white ditto; of beads, the following kinds, which must all be of the size usually called *seed-beads*: gold, silver, steel, burnt steel, garnet, and clear white. The gold and silver beads must be round ones, not the cut kind commonly bought. For the garniture, two fringe ends, combining burnt and common steel and gold, with rings of gold and steel. Crochet hook, Nos. 23 and 21; or those who crochet very loosely should use 24 and 22.

Purses in which the pattern is formed of beads of any one kind on a silk ground in crochet and knitting, have long been common in England; but until the Exhibition none had been seen in which various sorts of beads were interningled to form the design. The specimens of this sort of work in the foreign departments of the Crystal Palace were, however, so beautiful as to attract great attention and admiration; and we trust we are at once gratifying our fair readers, and fulfilling the promises made to them last year, by giving them instructions for manufacturing these requisite and costly articles. The process is by no means difficult, requiring only attention to the directions; and the expense of the materials is inconsiderable; the manufacture may therefore be made a source of considerable profit.

In selecting the materials, great care should be taken that the beads are all of the same size, otherwise the work will be spoiled. The rings should be as large as they can be procured. The beads must first be strung on the two kinds of silk; all the gold and some steel on the garnet silk, and the remainder on the white. Put them on in the following order:—

Garnet silk. 32 gold, 5 steel, 8 g., 5 s., 9 g., 6 s., 10 g., 6 s., 7 g., 2 s., 4 g., 2 s., 4 g., 2 s., 4 g., 2 s., 4 g., 4 s., 4 g., 4 s., 4 g., 1 s., 4 g., 1 s., 11 g., 2 s., 18 g., 2 s., 13 g., 1 s., 8 g., 1 s., 367 g., 1 s., 8 g., 1 s., 8 g., 4 s., 8 g., 4 s., 6 g., 3 s., 4 g., 3 s., × 4 g., 2 s., × six times, 11 g., 2 s., 18 g., 2 s., 14 g., 4 s., 10 g., 4 s., 7 g., 2 s., 4 g., 2 s., 6 g., 6 s., 8 g., 6 s., 4 g., about 100 steel.

This quantity of beads will be required for one end; they should, therefore, be distributed on two skeins of the silk. The best way is to thread on one skein all up to the 367 gold, and about 150 of them; use this silk up, and then, if a few more are required, you can easily add them. If there be too many, they can be strung on the next skein. The other end will be done in the same way.

On the white silk thread the silver, blue steel, common steel, white and garnet beads, in the following order, the quantity given being for one end, for which about two skeins of silk will be required, which must be arranged like the garnet.

The colours will be indicated by their initial letters:—s., silver; st., steel; b.s., blue steel; w., white; ga., garnet.

234 w., 1 st., 5 w., 1 b.s., 6 w., 1 b.s., 5 w., 1 st., 4 w., 1 st. 5 w., 1 b.s., 6 w., 1 b.s., 5 w., 1 st., × 4 w., 2 st., 4 w., 2 b.s., 2 w., 2 b.s., 4 w., 2 st., × twice, 2 w.

This suffices up to the second round of blue steel. We will now give them in their successive rows; to prevent confusion observing that as every row is but one side of the end, it must be *repeated* in threading the beads, as will be seen by the marks.

3rd Row: × 5 w., 3 st., 2 wh., 3 b.s., 12 w., 3 b.s., 2 w., 3 st., 5 w. × twice.

4th: × 8 w., 4 st., 5 b.s., 12 w., 5 b.s., 4 st., 8 w. × twice.

5th: × 9 w., 2 st., 6 b.s., 3 w., 1 st., 6 w., 1 st., 3 w., 6 b.s., 2 st., 9 w. × twice.

6th: × 9 w., 1 st., 5 b.s., 3 w., 3 st., 6 w., 3 st., 3 w., 5 b.s., 1 st., 9 w. × twice.

7th: × 5 w., 1 b.s., 4 w., 5 b.s., 6 st., 6 w., 6 st., 5 b.s, 4 w., 1 b.s., 5 w. × twice.

8th: × 5 w., 8 b.s., 2 ga., 5 st., 6 w., 5 st., 2 ga., 8 b.s., 5 w, × twice.

9th: × 4 w., 7 b.s., 4 ga., 4 st., 4 w., 4 st., 4 ga., 7 b.s., 4 w. × twice.

10th: × 3 w., 6 b.s., 4 ga., 3 st., 4 w., 3 st., 4 ga., 6 b.s., 3 w. × twice.

11th: × 4 w., 4 b.s., 1 st., 5 ga., 1 st., 6 w., 1 st., 5 ga., 1 st., 4 b.s., 4 w.

12th: × 6 w., 3 st., 4 ga., 1 st., 1 s., 6 w., 1 s., 1 st., 4 ga., 3 st., 6 w. × twice.

13th: × 6 w., 5 st. 4 ga., 3 s., 6 w., 3 s., 4 ga., 5 st., 6 w. × twice.

14th: × 3 w., 6 st., 1 w., 2 st., 5 ga., 2 s., 8 w., 2 s., 5 ga., 2 st., 1 w., 6 st., 3 w. × twice.

15th: × 4 w., 4 s., 2 w., 3 s., 4 ga., 3 s., 8 w., 3 s., 4 ga., 3 s., 2 w., 4 s., 4 w. × twice.

16th: × 9 w., 4 s., 4 ga., 5 s., 4 w., 5 s., 4 ga., 4 s., 9 w. × twice.

17th: × 9 w., 5 s., 3 ga., 1 s., 1 w., 2 s., 6 w., 2 s., 1 w., 1 s., 3 ga., 5 s., 9 w. × twice.

18th: × 6 w., 5 s., 3 ga., 1 s., 12 w., 1 s., 3 ga., 5 s., 6 w. × twice.

19th: × 2 w., 3 s., 1 w., 1 s., 3 ga., 1 s., 12 w., 1 s., 3 ga., 1 s., 1 w., 3 s., 2 w. × twice.

20th: × 2 w., 3 s., 2 w., 1 s., 2 ga., 1 s., 10 w., 1 s., 2 ga., 1 s., 2 w., 3 s., 2 w. × twice.

21st. × 2 w., 3 s., 3 w., 1 s., 2 ga., 1 s., 4 w., 1 s., 2 ga., 1 s., 3 w., 3 s., 2 w. × twice.

22nd: × 8 w., 1 s., 2 ga., 1 s., 2 w., 1 s., 2 ga., 1 s., 8 w.

23rd: Like 22nd.

24th: × 8 w., 1 s., 2 ga., 1 s., 4 w., 1 s., 2 ga., 1 s., 8 w. × twice.

25th: × 5 w., 1 s., 1 ga., 1 s., 10 w., 1 s., 1 ga., 1 s., 5 w. × twice.

26th: × 2 w., 1 st., 1 ga., 1 st., 10 w., 1 st., 1 ga., 1 st., 2 w. × twice.

27th: × 7 w., 1 st., 1 ga., 1 st., 10 w., 1 st., 1 ga., 1 st., 7 w. × twice.

28th: × 7 w., 1 st., 1 ga., 1 st., 12 w., 1 st., 1 ga., 1 st., 7 w. × twice.

29th and 30th: Like 27th.

31st. × 8 w., 1 st., 1 ga., 1 st., 4 w., 1 st., 1 ga., 1 st., 8 w. × twice.

32nd: × 9 w., 1 st., 1 ga., 1 st., 4 w., 1 st., 1 ga., 1 st., 9 w. × twice.

33rd: × 11 w., 1 st., 1 ga, 1 st., 6 w., 1 st., 1 ga., 1 st., 11 w. × twice.

34th: × 3 w., 1 b.s., 8 w., 3 st., 10 w., 3 st., 8 w., 1 b., 3 w. × twice.

35th: × 4 w., 2 b.s., 5 w., 2 b.s., 14 w., 2 b.s., 5 w., 2 b.s., 4 w.

36th. × 6 w., 5 b.s., 13 w., 5 b.s., 6 w. × twice.

148 more white beads will be sufficient for the end.

To about the 20th row, may be threaded and used; and then, if sufficient silk is left, two, three, or more rows, may be added. The skeins being thus prepared, begin to make the purse with the garnet silk, using the white *only*, when the beads threaded on it come in the pattern.

With the finest crochet hook make a chain of 118 stitches, and form it into a round; and crochet 4 rounds quite plain. Work in the white silk.

1st Pattern Round: × 11 silk, 3 gold beads, 3 silk, 4 gold, 16 silk, 4 gold, 3 silk, 3 gold, 12 silk. × twice.

2nd (beginning to use the white beads): × 10 s., 1 g., 3 w., 1 g., 1 s., 1 g., 4 w., 1 g., 1 s., 2 st., 4 s., 1 st., 3 s., 2 st., 1 s., 1 g., 4 w., 1 g., 1 s., 1 g., 3 w., 1 g., 11 s. × twice.

3rd: × 9 s., 1 g., 4 w., 3 g., 5 w., 1 g., 2 s., 1 st., 1 s., 4 st., 1 s., 1 st., 2 s., 1 g., 5 w., 3 g., 4 w., 1 g., 10 s. × twice.

4th: × 8 s., 1 g., 14 w., 1 g., 2 s., 1 st., 4 s., 1 st., 2 s., 1 g., 14 w., 1 g., 9 s. × twice.

5th: Like 4th.

6th: × 8 s., 1 g., 14 w., 1 g., 3 s., 4 st., 3 s., 1 g., 14 w., 1 g., 9 s. × twice.

7th: × 9 s., 1 g., 2 w., 1 st. (of those on the white silk), 5 w., 1 b.s., 3 w., 1 g., 6 silk, drop on a steel bead before the next stitch, 6 s., 1 g. (over white bead), 3 w., 1 b.s., 5 w., 1 st., 2 w., 1 g., 10 silk. × twice.

8th: × 5 s., 3 g., 1 s., 1 g., 2 w., 3 st., 4 w., 2 b.s., 1 w., 5 g., 2 s., 2 st., 2 s., 5 g., 1 w., 2 b.s., 4 w., 2 st., 2 w., 1 g., 1 s., 3 g., 6 s. × twice.

9th: × 4 s., 1 g., 3 w., 2 g., 2 w., 3 st., 2 w., 3 b.s., 6 w., 1 g., 2 s., drop a steel bead, 2 s., 1 g., 6 w., 3 b.s., 2 w., 3 st., 2 w., 2 g., 3 w., 1 g., 5 s. × twice.

10th: × 3 s., 1 g., 8 w., 4 st., 5 b.s., 6 w., 1 g., 2 s., 1 g., 6 w., 5 b.s., 4 st., 8 w., 1 g., 4 s. × twice.

11th: × 3 s., 1 g., 9 w., 2 st., 6 b.s., 3 w., 1 st., 3 w., 2 g., 3 w., 1 st., 3 w., 6 b.s., 2 st., 9 w., 1 g., 4 s. × twice.

12th: × 3 silk, 1 g., 9 w., 1 st., 5 b.s., 3 w., 3 st., 3 w., 2 g., 3 w., 3 st., 3 w., 5 b.s., 1 st., 9 w., 1 g., 4 s. × twice.

13th: × 3 s., 1 g., 5 w., 1 b.s., 4 w., 5 b.s. (over the 5 b.s. of last round), 6 st., 3 w., 2 g., 3 w., 6 st., 5 b.s., 4 w., 1 b.s. 5 w., 1 g., 4 s. × twice.

14th: × 3 s., 1 g., 5 w., 8 b.s., 2 ga., 5 st., 3 w., 1 g., 2 s., 1 g., 3 w., 5 st., 2 ga., 8 b.s., 5 w., 1 g., 4 s. × twice.

15th: × 4 s., 1 g., 4 w., 7 b.s., 4 ga., 4 st., 2 w., 1 g., 4 s., 1 g., 2 w., 4 st., 4 ga., 7 b.s., 4 w., 1 g., 5 s. × twice.

16th: × 5 s., 2 g., 3 w., 6 b.s., 4 ga., 3 st., 2 w., 1 g., 6 s., 1 g., 2 w., 3 st., 4 ga., 6 b.s., 3 w., 2 g., 6 s. × twice.

17th: × 6 s., 1 g., 4 w., 4 b.s., 1 st., 5 ga., 1 st., 3 w., 1 g., 6 s., 1 g., 3 w., 1 st., 5 ga., 1 st., 4 b.s., 4 w., 1 g., 7 s. × twice.

18th: × 6 s., 1 g., 6 w., 3 st., 4 ga., 1 st., 1 sil., 3 w., 2 g., 4 s., 2 g., 3 w., 1 s., 1 st., 4 ga., 3 st., 6 w., 1 g., 7 s. × twice.

19th: × 5 s., 1 g., 6 w., 5 st., 4 ga., 3 s., 3 w., 1 g., 2 s., 1 g., 3 w., 3 s., 4 ga., 5 st., 6 w., 1 g., 6 s. × twice.

20th: × 4 silk, 1 g., 3 w., 6 st., 1 w., 2 st., 5 ga., 2 s., 4 w., 2 g., 4 w., 2 s., 5 ga., 2 st., 1 w., 6 st., 3 w., 1 g., 5 s. × twice.

21st: × 4 s., 1 g., 4 w., 4 s., 2 w., 3 s., 4 ga., 3 s., 4 w., drop a gold bead off the garnet silk, between this stitch and the next, 4 w., 3 s., 4 ga., 3 st., 2 w., 4 s., 4 w., 1 g., 5 s. × twice.

22nd: × 4 s., 1 g., 9 w., 4 s., 4 ga., 5 s., 2 w., drop a gold between, as in the preceding row, 2 w., 5 s., 4 ga., 4 s., 9 w., 1 g., 5 s. × twice.

23rd: × 4 s., 1 g., 9 w., 5 s., 3 ga., 1 s., 1 w., 2 s., 3 w., drop a gold bead as before, 3 w., 1 s., 1 w., 1 s., 3 ga., 5 s., 9 w., 1 g., 5 s. × twice.

24th × 5 s., 1 g., 3 w., 2 g., 3 w., 5 s., 3 ga., 1 s., 6 w., drop a gold bead as before, 6 w., 1 s., 3 ga., 5 s., 3 w., 2 g., 3 w., 1 g., 6 s. × twice.

25th: × 6 s., 3 g., 2 s., 1 g., 2 w., 3 s., 1 w., 1 s., 3 ga., 1 s., 6 w., drop a gold bead as before, 6 w., 1 s., 3 ga., 1 s., 1 w., 3 s., 2 w., 1 g., 2 s., 3 g., 7 s. × twice.

26th: × 11 s., 1 g., 2 w., 3 s., 2 w., 1 s., 2 ga., 1 s., 4 w., 1 g., 1 w., drop a gold bead as before, 1 w., 1 g., 4 w., 1 s., 2 ga., 1 s., 2 w., 3 s., 2 w., 1 g., 12 s. × twice.

27th: × 10 s., 1 g., 2 w., 3s., 3 w., 1 s., 2 ga., 1 s., 2 w., 2 g., 1 s., 2 g., 1 s., 2 g., 2 w., 1 s., 2 ga., 1 s., 3 w., 3 s., 2 w., 1 g., 11 s. × twice.

28th: × 10 s., 1 g., 8 w., 1 s., 2 ga., 1 s., 1 w., 1 g., 8 s., 1 g., 1 w., 1 s., 2 ga., 1 s., 8 w., 1 g., 11s. × twice.

29th: Like 28th.

30th: × 10 s., 1 g., 8 w., 1s., 2 ga., 1 s., 2 w., 2 g., 4 s., 2 g., 2 w., 1 s., 2 ga., 1 s., 8 w., 1 g., 11 s. × twice.

31st: × 11 s., 1 g., 2 w., 2 g., 3 w., 1 s., 1 ga., 1 s., 5 w., 1 g., 2 s., 1 g., 5 w., 1 s., 1 ga., 1 s., 3 w., 2 g., 2 w., 1 g., 12 s. × twice.

32nd: × 4 s., 5 g., 3 s., 2 g., 2 s., 1 g., 2 w., 1 st., 1 ga., 1 st. 5 w., 1 g., 2 s., 1 g., 5 w., 1 st., 1 ga., 1 st., 2 w., 1 g., 2 s., 2 g., 3 s., 5 g., 5 s. × twice.

33rd: × 3 s., 1 g., 5 w., 1 g., 6 s., 1 g., 2 w., 1 st., 1 ga., 1 st., 5 w., 1 g., 2 s., 1 g., 5 w., 1 st., 1 ga., 1 st., 2 w., 1 g., 6 s., 1 g., 5 w., 1 g., 4 s. × twice.

34th: × 2 s., 1 g., 6 w., 1 g., 6 s., 1 g., 1 w., 1 st., 1 ga., 1 st., 6 w., 1 g., 2 s., 1 g., 6 w., 1 st., 1 ga., 1 st., 1 w., 1 g., 6 s., 1 g., 6 w., 1 g., 3 s. × twice.

35th: × 2 s., 1 g., 5 w., 2 g., 3 s., 3 g., 2 w., 1 st., 1 ga., 1 st., 5 w., 1 g., 4 s., 1 g., 5 w., 1 st., 1 ga., 1 st., 2 w., 3 g., 3 s., 2 g., 5 w., 1 g., 3 s. × twice.

36th: × 2 s., 1 g., 3 w., 3 g., 3 s., 1 g., 4 w., 1 st., 1 ga., 1 st., 5 w., 1 g., 6 s., 1 g., 5 w., 1 st., 1 ga., 1 st., 4 w., 1 g., 3 s., 3 g., 3 w., 1 g., 3 s. × twice.

37th: × 3 s., 1 g., 3 w., 1 g., 3 s., 1 g., 5 w., 1 st., 1 ga., 1 st., 2 w., 3 g., 8 s., 3 g., 2 w., 1 st., 1 ga., 1 st., 5 w., 1 g., 3 s., 1 g., 3 w., 1 g., 4 s. × twice.

38th: × 2 silk, 1 g., 5 w., 1 g., 2 s., 1 g., 4 w., 1 st., 1 ga., 1 st., 2 w., 1 g., 7 s., drop a steel bead, 7 s., 1 g., 2 w., 1 st., 1 ga., 1 st., 4 w., 1 g., 2 s., 1 g., 5 w., 1 g., 3 s. × twice.

39th: × 1 s., 1 g., 7 w., 2 g., 4 w., 1 st., 1 ga., 1 st., 3 w., 1 g., 5 s., 4 st., 5 s., 1 g., 3 w., 1 st., 1 ga., 1 st., 4 w., 2 g., 7 w., 1 g., 2 s. × twice.

40th: × 1 s., 1 g., 3 w., 1 b.s., 8 w., 3 st., 5 w., 1 g., 3 s., 1 st., 2 s., drop one steel, 2 s., 1 st., 3 s., 1 g., 5 w., 3 st., 8 w., 1 b.s., 3 w., 1 g., 2 s. × twice.

41st: × 1 s., 1 g., 4 w., 2 b.s., 5 w., 2 b.s., 7 w., 1 g., 2 s., 1 st., 6 s., 1 st., 2 s., 1 g., 7 w., 2 b.s., 5 w., 2 b.s., 4 w., 1 g., 2 s. × twice.

42nd: × 1 s., 1 g., 6 w., 5 b.s., 9 w., 1 g., 2 s., 1 st., 6 s., 1 st., 2 s., 1 g., 9 w., 5 b.s., 6 w., 1 g., 2 s. × twice.

43rd: × 2 silk, 1 g., 18 w., 1 g., 4 s., 1 st., 4 s., 1 st., 4 s., 1 g., 18 w., 1 g., 3 s. × twice.

44th: × 3 s., 5 g., 6 w., 3 g., 3 w., 1 g., 5 s., 1 st., 4 s., 1 st., 5 s., 1 g., 3 w., 3 g., 6 w., 5 g., 4 s. × twice.

45th: × 2 s., 1 st., 4 s., 1 g., 6 w., 1 g., 2 s., 3 g., 4 s., 2 st., 6 s., 2 st., 4 s., 3 g., 2 s., 1 g., 6 w., 1 g., 4 s., 1 st., 3 s. × twice.

46th: × 2 s., 1 st., 5 s., 1 g., 4 w., 1 g., 9 s., 1 st., 10 s., 1 st., 9 s., 1 g., 4 w., 1 g., 5 s., 1 st., 3 s. × twice.

47th: × 3 s., 1 st., 5 s., 4 g., 10 s., 1 st., 2 s., 2 st., 2 s., 2 st., 2 s., 1 st., 10 s., 4 g., 5 s., 1 st., 4 s. × twice.

48th: × 3 s., 1 st., 29 s., 2 st., 1 s., 1 st., 2 s. 1 st., 1 s., 2 st., 29 s., 1 st., 4 s. × twice.

49th: × 2 s., 1 st., 12 s., 2 st., 11 s., 2 st., 11 s., 2 st., 12 s., 1 st., 3 s. × twice.

50th: 2 s., 1 st., 3 s., 3 st., 5 s., 1 st., 2 s., 1 st., 2 s., 3 st., 5 s., 2 st., 5 s., 3 st., 2 s., 1 st., 2 s., 1 st., 5 s., 3 st., 3 s., 1 st., 3 s. × twice.

51st: × 3 s., 1 st., 1 s., 1 st., 3 s., 1 st., 2 s., 2 st., 1 s., 2 st., 2 s., 1 st., 3 s., 1 st., 3 s., 1 st., 2 s., 1 st., 3 s., 1 st., 3 s., 1 st., 2 s., 2 st., 1 s., 2 st., 2 s., 1 st., 3 s., 1 st., 1 s., 1 st., 4 s. × twice.

52nd: × 4 s., 2 st., 2 s., 1 st., 2 s., 1 st., 2 s., 1 st., 5 s., 1 st., 2 s., 1 st., 2 s., 1 st., 4 s., 1 st., 2 s., 1 st., 2 s., 1 st., 5 s., 1 st., 2 s., 1 st., 2 s., 1 st., 2 s., 2 st., 5 s.

53rd: × 3 s., 1 st., 2 s., 1 st., 1 s., 1 st., 2 s., 1 st., 1 s., 1 st., 2 s., 2 st., 2 s., 1 st., 1 s., 1 st., 2 s., 1 st., 6 s., 1 st., 2 s., 1 st., 1 s., 1 st., 2 s., 2 st., 2 s., 1 st., 1 s., 1 st., 2s., 1 st., 1 s., 1 st., 2 s., 1 st., 4 s. × twice.

54th: × 4 s., 2 st., 3 s., 2 st., 2 s., 4 st., 1 s., 2 st., 3 s., 2 st., 3 s., 2 st., 3 s., 2 st., 1 s., 1 st. 2 s., 2 st., 3 s., 2 st., 5 s. × twice.

This is the last round of the pattern; three plain single crochet rounds complete the end. Work one round in beginning the centre of the purse, × dc., 1 ch., miss 1—× repeat all round. After this, instead of working *round*, work backwards and forwards, taking care to make the opening at the centre of one side, parallel with the line where the beads were dropped. Take the stitches always *under* the chain, and make the dc. stitch of one row come over the chain of the last. When necessary, to secure this, work 2 dc. at the end, or beginning of the row. Do. 38 rows, and then a round, rising the coarser hook for the whole of this centre.

Slip on the rings; and when the other end is worked, connect it with the centre by a round of single crochet.

Sew on the garnitures, and the purse will be complete.

EMBROIDERED BRACES.

Materials. — A strip of fawn-coloured kid leather, long enough for one brace, and broad enough for two; at least eight shades of crimson embroidery silk, from black to pink; six shades of blue green, ditto yellow green; a skein of brown; a little gold thread, gold bullion, and a few steel beads.

These braces should be lined with buckskin, and bound with narrow sarsnet ribbon of the colour of the kid, with which the fittings should also correspond; but being a troublesome part of the work, and one which requires practice to do it well, we should recommend our fair friends to confine their labour to the decorative part, and then have them made up at a first-rate shop.

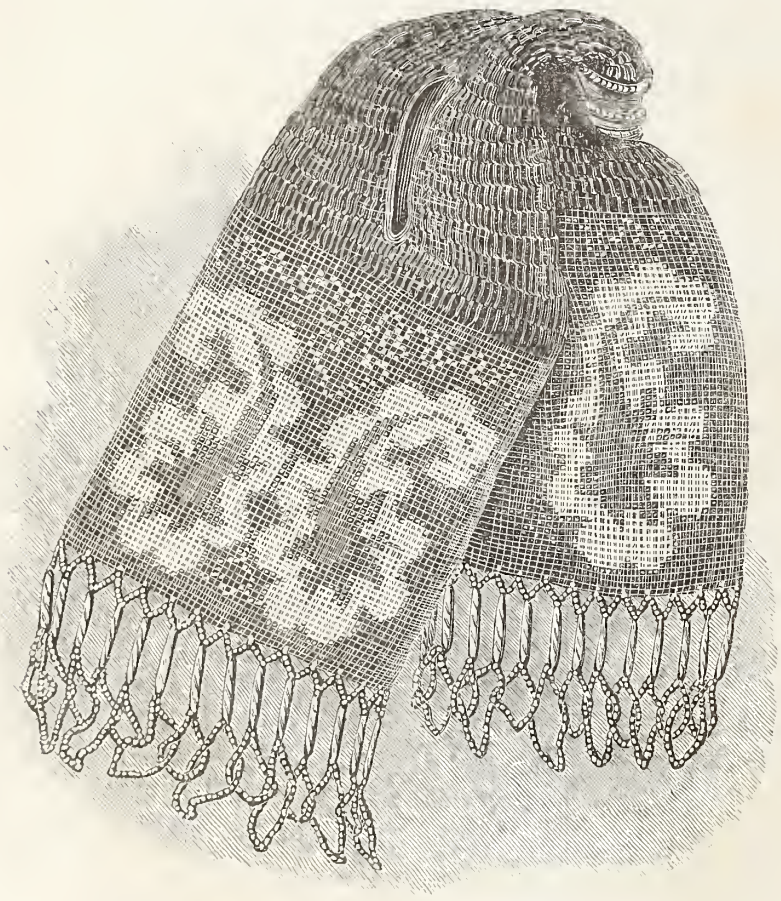
The design consists of dahlias and leaves, of which a section is given the full size, that the worker may trace the pattern from it. The most fashionable braces are made now narrower at the ends. Those who are sufficiently good artists should diminish the pattern from the centre at each repetition, so as to make the embroidery of the ends not much more than half the width. It may terminate with a few small leaves, arranged *ad libitum*.

The flowers are worked in shades of crimson, each petal having two shades, except the darkest, which are quite black, and the lightest, which are entirely pink. To prevent monotony, all the shades are only introduced into every alternate flower, the intermediate ones having the two lightest tints omitted. Should the worker happen to have a stock of silks of other colours, as straw, lilac, &c., some of the flowers may be worked in them, always provided there really exist dahlias of the colours proposed to be used. The stitches, throughout, radiate from the centre of the flower, which is formed thus:—A single steel bead forms the eye, and is surrounded by gold bullion, and, further, by loops of the same material. For this purpose, bring the needle (threaded with gold-coloured silk), up where the loop is to be made; slip on it a morsel of bullion a quarter of an inch long, and pass the needle down again in the same place. Each flower has eight of these loops in the eye. The small buds are made by a steel bead, surrounded by gold bullion.

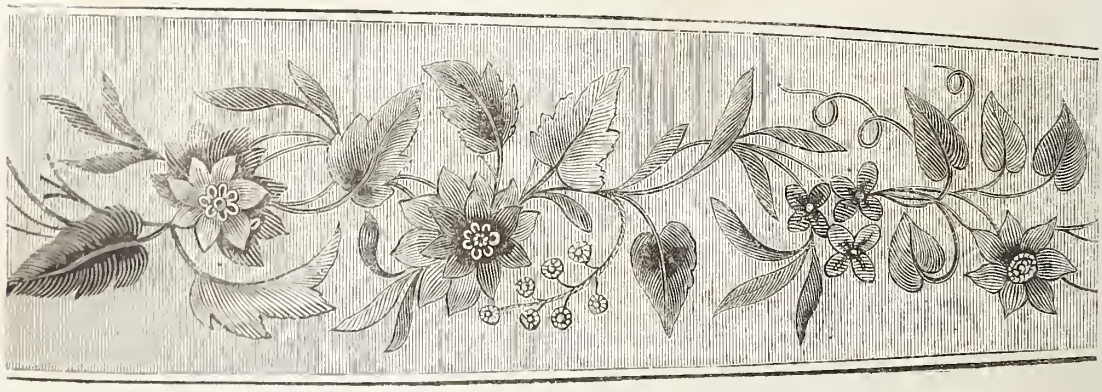
The leaves are worked in the various green silks, with at least two or three shades in every leaf, and many more in some of them. The greater part of the stems are in gold thread, laid on; but a few have green or brown silk, worked in half polka stitch.

In working the leaves, observe carefully that consecutive shades of green only must be used in each; there should be no violent contrasts.

For the proper way of making and preparing embroidery, and for definitions of the stitches used, we refer to previous numbers of the Illustrated Exhibitor and Magazine of Art.



Purse (crochet and beads).—*See page* 62.





EMBROIDERED BRACES.

SWITZERLAND IN WINTER.

If the tourists who crowd to Switzerland every summer were to revisit it in winter, they would, in many instances, find themselves unable to recognise the scenes which had afforded them so much enjoyment a few months previously. Everything seems petrified and dead. There are now no flocks wandering along the sides of the mountains, and no streams dashing along the shady valleys. The silence also is profound, almost painful. The heavy laden trees stand stiff and motionless. The snow lies on everything like a shroud, and all beneath seems lifeless. The cascades, which, when last seen, sparkled so merrily in the sun, and leaped from the rock with so loud a roar, are now bound up in a great mass of ice. The echoes, too, are gone. The blast of a trumpet dies as soon as blown. The mountains presenting but one mass of whiteness, the eye can no longer measure their respective distances, nor distinguish the loftiest peaks. The lakes which reflected all the colours of the rainbow in summer, now sleep dark and sombre, presenting a gloomy contrast to the snowy borders which surround them. Nature has the appearance of a vast desert, the very desolation of which is sublime beyond measure. The only sign of life to be seen anywhere is the tall column of pale blue smoke curling slowly up, perhaps from the neighbouring village. The road leading to it is cleared for one or two hundred yards, and on entering you find every house carefully disengaged from the vast masses of snow which collect



FROZEN CASCADE OF GIESSBACH.

around it. Other pathways lead from the dwelling-house to the stable and the shed in which the wood for fuel is stored—to the church and the churchyard. Sorrow for the past, and hope for the future are probably stronger here, in the midst of this desolation, than anywhere.

Perhaps in no part of the world is foresight so necessary and so general amongst the peasantry as in Switzerland. During the long winter the inhabitants of each village are perfectly isolated from the rest of the world, and, unlike the denizens of the polar regions, who can resume their hunting and fishing with but little preparation on the return of summer, the Swiss farmer must have the seed ready to sow immediately upon the melting of the snow, and all the necessary implements laid by ready for use, because, ere he could return from the nearest town, the best part of his short summer might have fled. Everything, too, is prepared for unforeseen accidents, for sickness, and even for death. Each village becomes for the time a little commonwealth, independent of all others. The priest or minister, in most instances, has charge of the medicine chest; and when all his efforts to alleviate bodily suffering have failed, he administers to the dying the consolations of religion.

Their insulated position causes the inhabitants to look upon one another as members of one large family, whose interests and welfare are inseparable. The daily rendering of trifling services nourishes the growth of kindly feeling. The poor, if there are any, are fed and taken care of; and in many of these secluded localities the Swiss peasant would stare with astonishment if told that in other parts of the world the pittance of relief for the destitute was extorted by law and paid with grumbling reluctance.

The village is generally during winter buried in silence. The inhabitants are seldom seen out of doors, except now and then a female bringing in wood from the storehouse for the fire, or the men procuring forage for the cattle. They have, however, their hours of sport and hilarity. The bell calls them to church, and the children to school; and upon their release the latter amuse themselves with making men of snow or sliding on the lake.

In some of the deep valleys the day is as short as the horizon is narrow, and in some of these the sun is never seen during many months. His rays every day gild the crest of the opposite mountain, but away in the depths below all is sombre, cold, and gloomy. It is a happy day for the inhabitants when his disc is first seen peeping over the edge of the snow. Spring is then at hand. But a wonderful difference exists at all times between the temperature of the southern declivities and the northern. The sun darts his rays full upon the former, but on the latter he never shines either in winter or in summer.

The reader would have but a very imperfect idea of an Alpine winter, if we omitted mentioning the wonderful effects which the light produces during that season. The appearances presented on a calm evening far surpass all the glories of the finest summer. The rosiest and liveliest tints take place of the dull and monotonous white; the lakes seem like floods of molten gold, or a great fire rising up from the centre of the earth. The trees and rocks, and even the vapours which begin to ascend on the approach of night, assume a roseate tint, which makes the whole landscape seem like a scene of fairy land. At last the mountain shadow falls wider and deeper over all, and everything is cold and lifeless as before.

Like all inhabitants of mountainous regions, the Swiss are very superstitious. Old and young believe in the existence of genii who wander amongst the avalanches, and delight in the tempests and whirlwinds which rage amongst the mountain tops. It is not long since the old men told by the winter firesides of the dangers which haunted the caverns, and a "giant of the mountains" whose voice could be heard above the ravings of the wildest storm. These sprites and ogres are, however, fast disappearing before the progress of education and enlightenment.

There is hardly any region in the world containing more that is both interesting and instructive, not to the mere traveller for pleasure only, but to the philosopher and the artist; and the simple pastoral life of the people of these secluded valleys presents a charming picture of innocence, content, and patient endurance of suffering and hardship, to him whose ear has been pained, and heart sickened by the vices and enormities of more civilised and more favoured climes. In the history of these mountaineers there is many a page which reflects the highest honour on human nature—of faithfulness to the ties of honour, duty, patriotism, and love, which has ten thousand times proved stronger than a death surrounded with horrors.

A few years ago, a peasant left his native village, in winter, for the purpose of making some purchases in the chief town of the district. He was accompanied by his two sons, one of whom was five years old, and the other younger. Finding that he would be compelled to wait longer than he had expected, he sent the two boys on, that they might reach home before it was night, as it was the month of November, when the heavy falls of snow generally take place. The storm overtook them on their way. The snow fell in great flakes, and the wind blew it in their faces, blinding them, and impeding their progress. The tempest howled fitfully through the ravines of the mountains, and the tall pines creaked ominously. The desolation of the whole scene was appalling; and the road at last disappeared beneath its white covering, and their progress became slow and fatiguing. The younger of the two lost courage, and began to sink fast. The elder encouraged him as much as he could, and at last he took him on his shoulders, and thus staggered on a little farther. Had he not come so far, he would have returned to the town; but believing himself not more than half a league from home, he determined to make a struggle to reach it. At length, unable to go on, he laid his little brother on the snow, and, finding he could not save him, he determined to perish with him.

"What are you about, Nicholas?" said the little hero; "go on, and try and get help from the village; and then you will be saved yourself, and maybe save me too." His brother then perceiving a sort of cavern in the rock, on the other side of the road, carried him over, and placed him in it; and, to mark the spot, he placed in the snow beside it a young cherry-tree, which his father had that day purchased in the market, to plant in his garden. He then set forward in quest of assistance.

The father, becoming alarmed on seeing the storm, hastened homeward. His anxiety increased as he proceeded, and, judging from the difficulty which he himself experienced in making his way, he shuddered to think of what his children must have been suffering. He kept a close watch on each side of the road as he passed on, fearing lest they might have taken refuge under some tree, and that he might pass without seeing them.

At length he reached the cherry-tree, which still raised its head above the snow, beside the place in which the child was lying, already buried deeply. He snatched it up with the liveliest joy, feeling confident that they were not far off, and had cast aside the plant that they might walk with greater ease. He placed it on his shoulder, and had gone on a few hundred yards, when the thought struck him that it was a signal of distress, and that they were both lying close at hand. Retracing his steps, he tore away the snow, and there was his child; but cold and insensible. Frantic with grief, he continued to search, still believing that the other could not be far distant.

At length, wearied and disconsolate, he took the inanimate body in his arms, and proceeded homewards. He had not reached halfway, when he was met by some of his neighbours, carrying the other boy on their shoulders, whom they had brought back, though unable to walk, to point out to them the resting-place of his brother. To describe the meeting and the explanation, would need the pencil of a Wilkie. Their sorrow was, however, soon turned to complete rejoicing, by the restoration of the younger child.

There is, however, one malady peculiar to the Alpine vallies, which sadly mars the bright pictures which the imagination of the English reader may have drawn of the charms of this retired and simple life. In those low recesses, where the sun never shines, the malaria arising from the ungenial soil, and the constant use of snow-water, brings on a most horrible form of physical and mental deformity. A frightful tumour, known as the *goitre*, grows on one side of the neck, distorting the countenance, and throwing the head to one side. The unhappy victim, at the same time, sinks into helpless, hopeless, and repulsive idiotcy. And, worse still, the misfortune becomes hereditary, and is sometimes perpetuated from generation to generation. Attempts have of late been made to effect cures by removal to better air, and giving gradually-increasing occupation to the mind. But, we fear, they have only been partially successful.

THE ORLEANS FAMILY.

Life never opens fairer than on the sons of kings. All that earth can give is theirs. The wearying toil and strife by which ambition slowly wins its way, are to them unknown. In time, they may learn the vanity and vexation of spirit which the Royal Preacher found in all created things; in time, they may learn how hollow and vain are the smiles of beauty, the flatteries of needy courtiers, the allurements of riches, or the sweets of power; but the youth of royalty sees not the lie, masked with such rare cunning, in the conventional homage that awaits it. To its impassioned gaze everything is fresh, and fair, and true.

Yet strange historic memories are connected with royal children. To every one of them belongs a mournful past. For instance, we take the names of the Count of Paris and the Duke of Chartres, children of the Duchess of Orleans, and one of them, by the abdication of Louis Philippe, at one time on the point of becoming King of France. In the Chamber of Deputies stood the widowed mother with the young candidate for a crown. The whole assembly was deeply impressed; the majority were about to ratify the act which should place the sceptre of the Grande Monarque in hands so young, when the scene was changed. The doors were burst open—an armed rabble rushed in—royalty fell—and on the ruins of the throne a, to all appearances, short-lived republic arose. Our artist painted these royal children when all was calm—when no storm loomed in the future. Soon for them came change, and those children, deprived of their ancient heritage, are now exiles in foreign lands.

An unenviable history is that of the Orleans family, and but little of historic renown is theirs. That an Orleans would betray those who raised him to power became a proverb at an early period. The annals of the family are dark indeed. We will briefly glance at them.

In the renowned diary of Mr. Pepys we read:—"The Princess Henrietta is very pretty, but much below my expectation; and her dressing of herself with her hair frizzed short up her ears, did make her seem so much the less to me. But," adds Mr. Pepys, in a strain of which every married lady must approve, "my wife, standing near her, with two or three black patches on, and well dressed, did seem to me much handsomer than she." This Princess Henrietta, the sister of Charles II., became the wife of that Duke of Orleans who is known in history principally as the head of that long line, the last of whom lamentably died ere the splendour of his family had passed away as a dream. The marriage was an unhappy one. The French court was sunk in depravity. Those were the days, as Macaulay has remarked, speaking of English history at the same period, of sensuality without love—of dwarfish virtues—of gigantic vices. One bright June morning, Henrietta rose earlier than usual, to visit her only child, afterwards Queen of Spain, and whose fate was to be as melancholy as her own. The day was passed in the discharge of the duties of her station. In the evening she was seized with violent spasms. A cry of alarm was heard in the Palace of St. Cloud. Medical skill availed nothing against the poison which an enemy had administered; and while Bossuet knelt by her bedside, a convulsive sob was heard—the crucifix escaped from the relaxed fingers—and Henrietta of Orleans was no more.

But we proceed to relate the history of the Orleans family. The duke married a second wife, Charlotte Elizabeth, of Bavaria, cousin of George I., of England, a lady who seems to have embraced Roman Catholicism for the same reason as her aunt Sophia, Electress of Hanover, remained true to the Protestant faith, without which the crown of England would never have gone into her family. This lady, in her memoirs, tells us, "On our arrival in France, three bishops were sent to confer with me on religion. They all three differed in their creeds. I took the essence of their opinions, and made a religion for myself." As she arrived in France when the Jansenist controversy raged most fiercely, it is no wonder that she found great differences of opinion amongst her episcopal instructors. The task of extracting the essence of their dogmas did not take any great length of time. On the very day of the conference the princess abjured Lutheranism, made her confession, and went through the ceremony of marriage. "Many people thought," said Mademoiselle Montpensier, "that she got through a good deal of business in one day." The lady was mother of the celebrated regent, to whom she appears to have been fondly attached. One of the greatest afflictions of her life was his marriage with one of the illegitimate daughters of Louis XIV.

Philip of Orleans, the son of the first Duke of Orleans, infamous in history as the Regent, requires to be drawn with no common care. Trained in a bad school, he early left his teachers behind. The excessive indulgence of his father, and the rigid severity of his mother, combined in perverting his character. In everything he was precocious. The Palais Royal was a hot-bed, in which he rapidly grew to an unnatural maturity. At the age of sixteen he had the experience in vice of a man of sixty. On the death of his father he became the richest subject in France, and began that career of ostentatious licentiousness which paved the way for that reaction against royalty which filled Europe with fear, and deluged France with blood. Louis XIV. said of him, "He is as bad as can well be represented, and, further, he boasts of vices which he does not possess." But his great talents enabled him to control the destinies of Europe. His mother happily said, "The fairies were invited to witness his birth, and each endowed him with a special talent. Unfortunately, one fairy was forgotten, who, arriving after the rest, said, 'He shall have all these talents, but he shall want one—the power of making a good use of any.'" On the death of Louis XIV. a new career was opened for his ambition. He was then in his forty-second year. Time had dealt kindly with him, and the death of Louis removed the only restraint under which he laid. His suppers at the Palais Royal were the most scandalous orgies ever permitted in a civilised country. St. Simoud says, "They were eaten in strange company. His mistresses, sometimes an opera girl, often his daughter, the Duchess de Berri, and a dozen men, his depraved companions, whom he unceremoniously called *roués*, intimating that each had committed crimes for which he deserved to be brought to the wheel. To these were added some of his officers, a few wild youths, ladies of high rank, but blemished reputation, and some persons of the lower rank, distinguished for their wit or depravity. The supper, consisting of the most exquisite viands, was dressed in a place prepared for the purpose, all the utensils being of silver. The guests themselves often shared the toil of cooks. At these meetings, everybody was passed in review—ministers and acquaintances, as well as others—with a freedom which amounted to licentiousness: the past and present intrigues of the court and city, old tales, disputes, jests, and jokes—no person or thing was spared. They drank deeply—they grew warm with wine—they uttered the most depraved sentiments, and vied with each other in blasphemy. When they had made noise enough, and were all intoxicated, they staggered to bed, to revel the same scenes on the following day." Nor did the Regent's accession to power bring more restraint or regard to the decencies of life. Still clever, and sceptical, and abandoned—a union of Don Juan and Mephistopheles—he played out his part as philosopher, and statesman, and rake. To contrive leisure for his criminal indulgences, the Regent entrusted the entire administration of State affairs to the notorious Dubois. But dissipation soon began to tell upon his frame; his face became blotched; apoplectic symptoms appeared. His physicians warned him, but in vain. One December evening, after a sumptuous dinner, he retired to the apartment of the young and beautiful Duchess of Phalaris, who had sacrificed her husband and her honour for his smiles. She began to tell him a story, but before the first sentence was finished, the duke was a corpse. Without space for repentance—unprepared—in the very midst of his vicious career—in the full blaze of his pomp and splendour—he was arrested by the hand of death.

The "devout" Duke of Orleans succeeded to the wealth, but not to the power, of the Regent. A change came o'er the spirit of the dream. The chambers of the Palais Royal were cleaned out, and



THE DUKE DE BRABANT AND THE COUNT DE FLANDRE.
(From a Painting by M. de Montpezat.)

the devils were expelled. No longer did it resound with the language of ribaldry and blasphemy—no longer were its saloons defiled by the presence of men without honour and women without shame. The duke led the life of a scholastic divine. The works of the Jansenists, and of Thomas Aquinas, were the writings he admired and imitated. We must record one other fact to his credit. He founded a professorship of Biblical Hebrew at the Sorbonne, "in order," as he declared, "that heretics should not



THE COUNT DE PARIS AND THE DUKE DE CHARTRES.
(From a Painting by M. Alfred de Dreux.)

be the only Christians who studied the Holy Scriptures in their original languages." The grandson of the Regent led an equally uneventful life. He was popular in Paris. His literary tastes were elegant. The jealousy of the elder branch of the House of Bourbon refused him any high office, and he lived chiefly in the company of men of letters, and died before commenced that reign of terror under which his ill-fated son laid down his life.

We must now speak of Philippe Egalité, who appears to have

made the vices of the Regent his study, and not in vain; still he was not so bad as represented. He was vicious, and a libertine; but not a monster. But we need not sketch him at further length. His popularity when the revolution commenced—his acquiescence in the vote which sent Louis XVI. to the guillotine—his own violent death, which he met with a fortitude worthy the occasion—are all known to our readers. Still less necessary is it for us to give the chequered career of his son, whose life closed, as so much of it had been spent, in exile, after he had realised the most ambitious scheme of the Orleans branch of the Bourbons, and ascended the throne of France. The last duke of that name perished by an accident whilst travelling, and the only descendants of a name associated with so much of fame and infamy, of glory and of shame, are the Count of Paris and the Duke of Chartres. Their cousins, the Duke of Brabant and the Count of Flanders, children of Leopold, King of the Belgians, have had a more equable fate.

The chequered career of Louis Philippe, Duke of Orleans, during the early part of his life, is known to most of our readers. He for years wandered over Europe in abject poverty, and in succession visited England and America. His history during this period of his life is a romance in itself; but our limited space will, of course, not permit us to enter into details. During his wanderings he visited Sicily, and, while there, became deeply enamoured of the Princess Maria Amelia, daughter of Ferdinand IV., of Naples, and Marie Carolina, of Austria. The Queen showed herself, for a long time, anything but favourably disposed towards him; but at length, by the influence of his mother and sister, who, after many vicissitudes of fortune, rejoined him in Sicily, all impediments to his suit were removed, and on the twenty-fifth of November, 1809, he was married to the Princess, to whom he was warmly attached. Early in October, 1810, she gave birth to a son—the late lamented Duke d' Orleans—who was killed by accident when out driving. Two daughters were subsequently added to the Orleans family during their residence in Sicily.

For some time after the restoration, Louis Philippe lived in retirement, attending to the cultivation of his estates, as he was coldly received by Louis XVIII. after the battle of Waterloo. After the accession of Charles X. he went more frequently to court, and was graciously received, though he and the king were of opposite politics. Upon the fall of that monarch, as is well known, the crown was offered him, and he ascended the throne as "Louis Philippe, King of the French." When Belgium separated from Holland, the crown was offered to the Duke de Nemours, second son of the King of the French, but the latter rejected an arrangement which would have given umbrage to the allied powers. Prince Leopold of Saxe Coburg, widower of the Princess Charlotte of Wales, was then selected; and soon after his elevation he married a daughter of Louis Philippe, and thus became as closely connected with the royal family of France as he was with that of England. Some time afterwards the Prince de Joinville, the present Duke of Orleans, was married to the Princess Francesca, sister of the Emperor of Brazil and Queen of Portuga

His efforts for the firm establishment of his family upon the throne, by the marriage of his son, the Duke of Montpensier, with the Infanta of Spain, daughter of Christina—his great affection for all the members of it—his overthrow and expulsion in 1848—his flight to England, and death in 1850 at Claremont—are known to all.

The Duke d'Aumale and Prince de Joinville, the sons of Louis Philippe, and grandsons of the unfortunate Philippe Egalité, distinguished themselves, previous to the revolution of 1848, in the French army and navy. The former displayed undaunted courage in various conflicts in Algeria, and the latter prided himself in no small degree upon his skill in maritime affairs. The pamphlet which he published a few years before his father's overthrow is, doubtless, still fresh in the minds of our readers, in which he attempted to demonstrate the practicability of making a successful descent upon England. That it was vain-glory, and a desire to win popularity amongst the soldiery, rather than any serious hope that his schemes would be carried into execution, which prompted him to turn author, we can have no doubt whatever; but it is not less certain that the effect produced upon the minds of the French people was anything but beneficial.

He also distinguished himself by his bombardment of Mogador upon very trivial pretences. When the revolution took place in 1848 the two princes at once resigned their commands, and took refuge in England. Joinville issued a farewell address to the French army and people, making the usual bombastic allusions to "France" and "glory," with which so many mock heroes have gulled the French people. They were then forbidden to appear on French territory,—a decree which we believe still remains unrevoked, and now that Louis Napoleon has ascended the throne, there is of course every probability of its being enforced with greater stringency than ever. What the future of these young nobles may be, we cannot say. Time alone can tell whether France will once more welcome back the Orleans family to their native land. Meanwhile, their history is but one of the series of illustrations with which this world abounds—illustrations of hopes disappointed—of pomp, and splendour, and affluence, and power, succeeded by exile, and infamy, and beggary, and want.

A VISIT TO APSLEY PELLATT'S FLINT GLASS WORKS.

(*Concluded from page* 59.)

Having spoken thus far of the preliminary processes—the furnace and management of a glass-house, with the constituents of flint-glass, and so forth—let us suppose we are standing in the glass-house, watching the operation of

MAKING A WINE-GLASS.

This domestic utensil a visitor generally sees made first; and few of us imagine what ingenuity is exerted in its production. First, the workman takes from the pot a sufficient "gathering" of the red-hot glass, which adheres to the blowing-iron. He next rolls it on the marver, or cast-iron slab, and, slightly swinging it round, blows through the pipe, so as to expand the metal sufficiently for the bowl of the glass. Another workman, seated at the chair, then receives the mass, and further shapes it by means of the pucellas and battledore, by which latter instrument the end is flattened. A second workman then brings a smaller gathering of fused glass, and places it to the end of the bowl, to which it immediately adheres. This is the stem. A few turns on the chair-handles, and a few slight touches of the pucellas, and the glass is ready to receive the foot. Another workman, called the "footer," brings a third gathering on the end of a blowing-iron. This is shaped like a small globe, and is instantly attached to the stem and opened out, and flattened by the workman at the chair till, in a moment almost, the glass is formed. A pontil, with a small piece of metal on it, is attached to the foot, and the glass is cracked off by a small blow of the cold pucellas. The glass is then re-heated at the pot's mouth, the bowl cleverly sheared round the edge, and the glass is, lastly, knocked off the pontil by a smart blow, and is taken away by a boy to the annealing-oven. This operation, so long in telling, and apparently so complex, is the work of about three minutes! The wine-glass we have described is made in three pieces; but similar articles are also frequently made in two pieces; and such is the dexterity exhibited by the chief workman—a dexterity only acquired by years of practice—that any number of glasses may be made of a particular pattern, with little or no tool-work, without the slightest apparent difference or variation of one from another. It must be understood that glass, in a state of fusion, has an affinity for glass in a similar condition, and that between each operation, as above described, the object has to be re-heated at the pot's mouth, and kept constantly rotating. The extreme rapidity with which these operations are performed is most astonishing. You

watch the workman as you would a conjurer, and the results are quite as surprising in the one case as in the other. The glass is in such a state of semi-liquidity, that it would drop from the tube if it were not kept in a state of constant rotation; while, on the other hand, it can be hoisted, shaped, elongated, cut, pressed, and fashioned, at the will of the workman.

Ornamental glass articles—such as drinking-glasses, decanters, cruets, lamps, chimneys, and globes, lustres for chandeliers, vases, tubes for thermometers, and the immense variety of objects in coloured glass—are all composed of the best flint-glass, while the common kinds of bottles and domestic utensils are made of an inferior sort of metal. The description we have given above will serve, with some few modifications, for a great number of articles. Thus, while we were present, we saw some goblets made, to which handles were attached. Here the taste and ingenuity of the workman was most severely tested. As before, the mass of red-hot metal was taken from the pot, rolled on the marver, blown out, shaped, whirled round, or "flashed," as it is called, re-heated, the stem and foot attached, and re-heated again. Then a boy brings, at the end of a pontil, a lump of glass, which the chief workman seizes at once with the tongs, and by a dexterous movement, which occupies less time than we do in describing it, attaches it to the goblet, draws it out, and, curving it elegantly upwards, attaches its other end to the upper part of the object. The ingenuity of this movement will be appreciated, when the reader knows that the workman has no guide but his eye in forming this handle, and that so accurately is the operation performed, that no difference can be perceived in the shape of a hundred handles.

In making a

CYLINDRICAL LAMP-GLASS,

considerable care is requisite, as these also must be of one size and pattern. A gathering of sufficient quantity is taken up by the blow-pipe, which is swung to and fro like a pendulum, and round the head of the workman like a conjuror's rope and balls. As the quantity of metal necessary is but small and light, the throw must be sharp and decided. The first solid gathering is expanded and swung out until it acquires a shape something like a cucumber; it is re-heated and swung again to elongate it, and the end is "whetted off" by contact with cold iron; it is then opened out with the pucellas, in which state it is called a "muff." A post or disk is applied to the other end, and it is finally knocked off and taken away to be annealed. The rough surface left at either end is afterwards ground smooth.

In making what are called

BLOWN-OFF DISHES, SALT-CELLARS, &c.,

much ingenuity is exerted. An oblong dish of ten inches long weighs about six pounds, and requires two or three gatherings of metal. When it has been well rolled and flattened into a crude square or other form upon the marver, the workman ascends the chair, and presses it into a brass mould previously placed on the ground, urging the pressure by blowing, frequent lifting, and again as it were stamping it into the mould; and at last increasing the inflation from the lungs, and greatly expanding the upper part of the dish, called the blow-over, till it becomes so thin at parts as sometimes to explode. A piece of wood is used to knock off the lower part of the overplus, leaving the dish of considerable substance, which is then turned out of the mould to be annealed. In this way are formed nearly all dessert dishes, and other flat and shallow domestic utensils.

The mention of a mould naturally brings us to the consideration of

THE METHOD OF MAKING GLASS BOTTLES.

The bottles used by perfumers, apothecaries, and wine merchants, are all made upon one principle—that is to say, they are blown out in a mould. Without close attention, the minutiæ of this operation eludes the eye, so quickly is it performed. The workman first takes a gathering from the pot with his blowing-iron, and after rolling it on the marver, to give it a cylindrical form, pinches it at one end, by means of a small instrument, to form the neck. He next inserts the end of the tube into a small brass mould lying on the ground, and blows through the tube. This causes the glass to fill up the cavity of the mould, which is formed of two pieces, joined together at the bottom by a hinge. The mould being opened by the withdrawal of the workman's foot from a spring, the bottle, completely formed except the neck, is withdrawn, still attached to the end of the tube. It is now knocked off the tube and received by another workman, who, after taking it up at the end of an iron rod, reheats it at the "castor-hole," the small opening of an inferior furnace, and, with a few simple tools, forms the neck. This operation, which goes on continuously and regularly, occupies about half a minute. As soon as one workman has left the mould, another, with a similar lump of red-hot glass, takes his place; and so quickly is the whole process carried forward, that one workman can form the necks of the bottles which three others are employed in moulding. The mould is kept nearly red-hot, by means of a small furnace, without which precaution the exterior of the bottles would become "ruffled," and be deficient in the necessary polish, A slight seam is left at the junction of the mould, which is not observable in square perfumery bottles, where the joints are at the edges.

In the kind of ornamentation called

ROMAN MOULDED PILLARS,

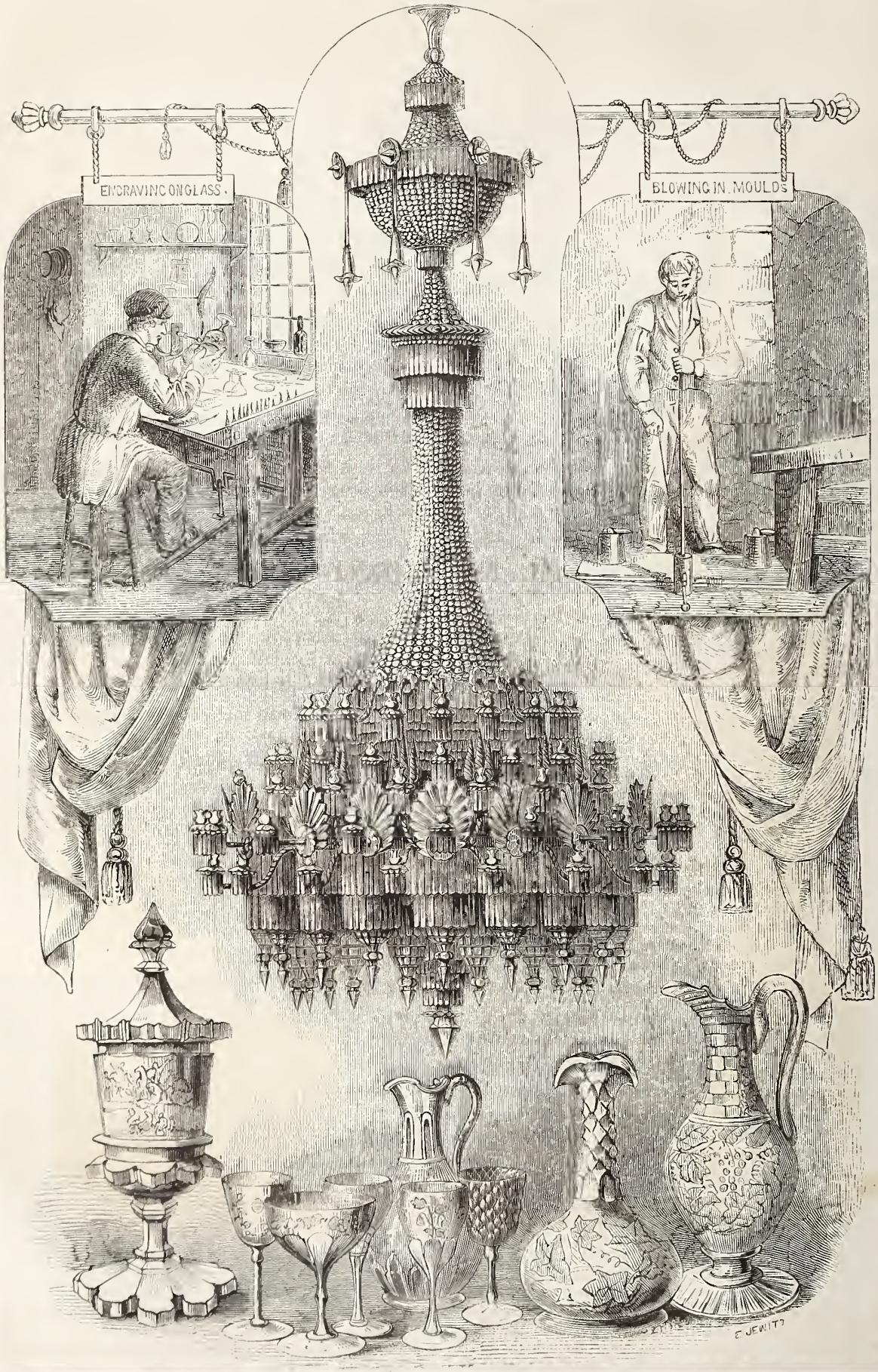
an effect is produced in decanters, drinking-glasses, chandelier-drops, scent-bottles, salt-cellars, toilet appliances, &c., similar to that of cutting, the interior being smooth, while the outer surface is corrugated, or ornamented with a pattern. This kind of object requires a mould about one-third smaller than the article required. A gathering is taken in the ordinary manner, and, after being allowed to partially cool, a second gathering is taken over the first, and the two, as hot as possible, are pressed into the mould;—the outer coating only receives the impression, and the interior is inflated by the breath of the workman. Being afterwards re-heated several times, the object obtains the proper fine polish. The foot is attached in the ordinary manner. In this way are produced those cheap domestic utensils, which, though much inferior to cut glass, are still very handsome. This sort of work receives its name from the fact that these projecting pillars are proved to have been known to the ancients, some Roman specimens lately found in the city of London being so formed.

Considerable quantities of pressed or moulded glass are sold in London and the principal towns, in the shape of drinking vessels, decanters, ornaments for candlesticks, &c. It is, of course, much inferior to cut glass, both in quality and appearance, but its extreme cheapness has rendered it available for numerous purposes for which glass had not been hitherto used; and so popular has it become since the reduction of the duty, that what was before a comparative luxury, has happily become a necessity, in the houses of the humblest cottagers. Pressed glass was, we believe, first made in the United States, but it is now manufactured in considerable quantities in the manufacturing towns of the North.

The ductility of fused glass is nowhere so observable as in the

TUBES FOR THERMOMETERS, &c.;

the making of which is extremely simple, and requires little more tact and nicety than is observable in other processes. A gathering is taken up by the workman, who rolls it on the iron-faced table till it has assumed a cylindrical form; he then blows lightly into it, to form the cavity within; and holding it towards another workman, who attaches a hot iron to the other end, the two men walk backwards, the glass elongating as they recede, till the required length is obtained. In this way a tube of between sixty or seventy feet is sometimes drawn out. At first the glass drops in the centre, as a cable does from the ship to the shore; but as it cools, and the men cease to turn it round, it assumes, by continued tension, nearly a straight line, except at the extreme ends, and is of an uniform bore throughout. It is then allowed to cool on the wooden rounds of a ladder placed on the floor, and the enlarged ends cut off with a steel file. If a simple cane, or solid thread of glass, is required, of course no blowing is necessary. In fact, the process of glass-drawing is exactly similar to the tricks we have most of us played in our youth with a bit of glass in the kitchen-fire. The mercurial column in thermometers is generally seen flat, while the outer surface is round: this effect is produced by flattening the tube before it is blown out, and afterwards re-dipping the mass.



GRAND CUT-GLASS CHANDELIER, AND GROUP OF OBJECTS, MANUFACTURED AT MESSRS. PELLATT AND CO.'S GLASS-WORKS.

In this way nearly all the tubes for meteorological, optical, and other purposes, is produced. Flint-glass possesses, at the working heat, a degree of tenacity and ductility not to be found in any other substance in nature. The exhibition of glass-workers at works of Messrs. Apsley Pellatt and Co.; such as—the Venetian Ball, which is a collection of waste pieces of fillagree-glass, collected together and packed in a mass of the best transparent flint-glass; the *Mille-Fiore*, or star-work of the Venetians, by



CATHEDRAL OF EVREUX (NORTH SIDE).—*See page* 79.

fairs, &c., is conducted on the principle of tube and cane-drawing; though the blow-pipe, instead of the furnace, is the melting medium.

Various curious and highly-interesting objects are made at the which the ends of coloured-glass cane are arranged in a pattern and covered with a transparent surface; mosaic work, in which exquisite designs in arabesque are formed of threads of glass ranged vertically side by side, agreeably to a previously-formed design, of

the Venetian diamond-moulded glass, which is produced either in a mould or by making a "pillared" surface to the object, and "pinching" the pillars together with the pncellas at certain determined distances; the cased glass used for toilet and scent bottles which is produced simply by a double gathering of fused glass, the outer one of which is ground off in a pattern, so as to show the glass beneath; the Venetian frosted glass, the cracked appearance of which is produced by suddenly plunging the object into cold water while at a red heat, and afterwards re-warming it at the pot's mouth, so that, while the onter surface appears as if it was cracked in a thousaud places, the bottle or glass is perfectly sound. The philosophical toys known as "Prince Rupert's Drops," and Bologna phials, are made in the same manner. The exterior becomes cooled by the snddeu contact with the water before the interior has had time to contract in a similar degree. The state of tension, therefore, is such, that the slightest scratch with a pin reduces the object to a thousand fragments.

Glass for optical purposes is made of the very best materials, it being necessary not only to preserve the lenses from *striæ*, or wreaths, but to render them as clear, brilliant, and colourless as possible. It appears that English manufacturers have not yet attained perfection in the production of optieal glass, and that M. Guinnard, of Geneva, and some one or two French manufacturers, have made the finest specimens. Those of our readers who noticed the illuminating powers of the two light-house lanterns at the Great Exhibition, could not but have remarked the superiority of the one exhibited by Mr. Wilkins, of Long-acre, the glass for which was manufactured in France. Optical glass of large size is not, we believe, made by Mr. Apsley Pellatt.

All glass is liable to fracture unless it is cooled by degrees; for this purpose, as soon as any article leaves the hands of the workman, it is taken up by a boy, by means of a fork or a pair of wooden tongs, and carried to

THE ANNEALING OVEN.

Fliut-glass, owing to its peculiar crystalline structure, must be carefully cooled. If glass were allowed to cool in the open air, it would contract unequally, and be therefore more liable to crack. To obviate this, it is cooled by a very ingenious method, being gradually and almost insensibly drawn from a heat only less powerful than that of the furnace where it was fused, to the atmosphere. The breaking of common drinking-glasses on the application of hot water is owing to insufficient annealing. We have before mentioned the annealiug arch; let us now see what sort of a place it is. A glanee at the engraving (page 57) will convey an idea of the exterior; but of its interior we must know something more. Well, then, the "lear," as it is called, consists of an arch or oven open at both ends; at the hot end of which the objects to be annealed are received, and at the cool end of which they are discharged. There are two semi-cylindrical arches, partly closed by iron doors, the purpose of which is to make the openings larger or smaller as reqnired; for it is important that as little cool air as possible should be admitted to the oven. On the floors of these two arches, which are sixty feet in length, are placed iron pans to receive the goods, which travel backwards and forwards on a miniature railway, worked by an endless chain. The farther the arch recedes from the furnace the cooler is the air; and at the end the goods are received in an air-tight room. Different degrees of heat are kept up in each lear or arch, the hottest being intended for goods which are afterwards to be cut, and the coldest for ordinary table-glasses, phials, lamp-glasses, &c. The time required for annealing the newly-made goods varies from six to sixty hours; and the very best arrangements for annealing, or cooling, may be frustrated, should the glass-blower have in any way neglected his duty—lost time, for instance, in finishing his work—as the hotter the article enters the arch the better. For this reason large articles, such as globes, decanters, &c., are re-heated, when finished, at the mouth of a pot heated by beech-wood, called the "glory-hole." Great losses occasionally accrue from breakage, should too much atmospheric air be admitted to the arch; the direction of the wind, or the sudden opening of a door or window, having frequently done incalculable damage. To work the annealing oven advantageously, it is generally arranged that goods of a similar character shall, if possible, be made about the same time, so that the same fire may serve for all; or the railroads are made to travel at different speeds. The visitor will have noticed beside the mouth of the annealing arch, which glows with a dull radiance at a little distance from the furnace, several iron handles *outside* the building. These were used, in the days of excise supervision, to draw the goods from one end of the arch to the other, the exciseman keeping the key of the receiving-room at the extreme or cool end. In those days, the goods were taken from the pans, and, if found perfect, were weighed for duty, twopence being exacted for every pound of manufactured flint-glass. Much to the satisfaction of the glass-maker and the benefit of the public, the surveillance of the exciseman, which was not confined to the lear, is at an end and the duty ou glass repealed.

As far as the process of glass *making* is concerned, our visit is over. Let us now, therefore, go to

THE GLASS-CUTTING ROOM.

The engraving (page 56) will furnish a good general view of the glass-cutter's wheel and apparatus: a part only of the glass-cutting room is shown, some forty such wheels, for different kinds of work, being in operation, all of them driven by steam-power. The wheels are of different sizes, and are capable of being stopped or put out of gear at the will of the workman. The cutting, or rather grinding, of glass utensils, is too well known to need much description. A cast-iron wheel has sand and water dropping from the hopper while revolving in a lathe. The workman takes the object to be ground in his hands, and, holding it against the edge of the revolving wheel, grinds it down to the required distance; and such is the dexterity acquired by practice, that one man will cut a thousand drinking-glasses, not one of which will materially differ in appearance from the other. The object is held in various positions, so as to produce the pattern required, care and accuracy of eye being the only guides for the worker. The iron wheels, with sand and water, are reqnired for the first grinding; stone wheels, with rotten-stone and water, for smoothing the rough surfaces; and wooden wheels and putty-powder for the final polishing. In this simple way were produced all those fine cut goods shown at the Exhibition by Messrs. Pellatt, and for which they received a prize medal. In another room are ground the stoppers for decanters and "doctors' bottles," the importance of which last being well made, is known to all chemists and experimentalizers.

With a glance at the operatious of

THE GLASS ENGRAVER,

our visit, already somewhat too long, must be brought to a close The antiquity of engraving on glass is unquestionable; the Portlaud Vase, and many specimens of Venetian workmanship attesting the skill of artists now known no longer. Engraving on glass must be really considered a branch of the fine arts, so delicate and curious are some of the effects produced. The workman sits before a small lathe worked by the foot; and, by means of a series of varions-sized copper discs and a little emery powder moistened with oil, he produces those elaborate and highly-finished designs so much valued. The glass engraver is a workman of the highest class, possessing a good knowledge of the forms of natural objects, a strictly refined taste, and a delicacy of hand and eye unsurpassed by the labourer in any other department of manufacture. For the general effect, as far as a wood engraving can give it, of the finished articles furnished at this establishment, we must refer to the engraving (page 72). Words fail in describing what can only be appreciated by the eye.

A few words, and we have done. There is, perhaps, no employment in which so much nerve and steadiness is requisite as in that of the glass-maker. The workman, however rough his exterior, and unpromising his aspect, is in some respects au artist; for without taste and a capacity to improve, no man becomes a good glass-maker. In spite of the heat of the factory, the labour of the glass-maker is not unhealthy. The limbs and the lungs are both exercised, and many old men may be found in the glass-maker's chair. In conclusion, we are glad of this opportunity of thanking the proprietor of the works we have visited; and, should any of our readers wish to see the whole process for themselves, we are certain they will receive a *warm* reception at the Falcon Glass Works.

THE SCIENCE OF SHELLS.

Shells are frequently regarded as attractive objects, but they are worthy of far more attention than they usually receive. In form they exhibit an almost infinite variety. While some consist merely of a simple tube, or a hollow cup, others present the most graceful convolutions, and appear in the form of cones, spires, and turbans. The useful, too, is suggested, no less than the beautiful; for there are shells shaped like a box, with every variety of hinge, from that of simple connection by a ligament, to the most complicated articulation. So various and elegant, indeed, are the forms of shells, that Lamark strongly recommended them to the study of the architect. "There is scarcely any possible form," he says, "of which nature does not here supply examples;" and he specifies certain shells which would supply a choice of models for the ornaments of columns, and which "are highly worthy to be so employed." In England, however, no such recommendation is necessary, as many of our beautiful stucco ornaments, particularly for chimney-pieces, are copied from shells, and are greatly admired.

The colours of shells are often so intensely vivid, so finely disposed, and so fancifully variegated, that, as objects of beauty, they rival many choice productions of the animal and vegetable kingdoms, and in some respects exceed them. How feeble an impression do we receive from a *Hortus Siccus*, compared with that which is produced by the living plants and flowers, attired in beauty, and breathing forth fragrance; and there is a vast difference, notwithstanding all the skilful efforts of art to diminish it, between the animal living and dead. The shell, however, retains not merely the form, but all the brilliant hues it had in its own native waters. And then, whatever care may be taken to preserve a quadruped, a bird, a fish, or an insect, as a specimen for the cabinet, such objects suffer by changes of atmosphere, while various minute creatures attack and destroy them. With shells it is not so. Composed of particles already in natural combination, they contain no seeds of dissolution, and the collection made by the parent may be handed down to the child, and by him transmitted, in all its pristine beauty and durability, to the remotest generation. We shall, therefore, give two or three articles descriptive of shells, and also of their inhabitants, accompanied by numerous and beautiful illustrations.

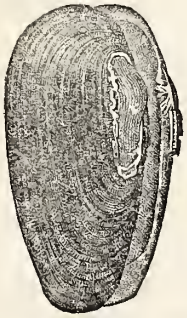
The materials of a shell are supplied by an organised fleshy substance, often termed the "skin," but now known as the "collar," in shells consisting of one piece, and by the margins of the "cloak," or "mantle," of the animal, in those of two pieces. They consist of particles of carbonate of lime, and of an animal substance, resembling, in its chemical properties, either albumen or gelatine. An easy experiment will illustrate their structure; for, if diluted nitric acid be poured on a shell, or a piece of one, placed in a glass vessel, there will soon be thrown off a soft floating substance, which is, in fact, the animal part of the shell, retaining its precise figure, and consisting of net-like membranes. As thin, earthy particles are secreted for the purpose, and perspired through the vessels of the animal, they gradually incrust these meshes, and the shell is formed.

Fig. 1.



Shell strengthened by the accretion of other substances.

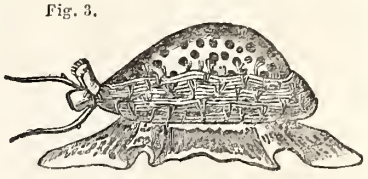
Fig. 2.



Striæ, or Streaks on a Shell.

The process of formation itself may be distinctly observed. Let piece be removed from the shell of a living snail—which may be done without the slightest injury, as the shell adheres to the body at only one point—and in the course of twenty-four hours there will be formed a fine spider's-web-like pellicle, which, stretched across the vacant space, becomes the first stratum of the new piece. In a few days it will be found increased in thickness, by layers added to its inner surface; and such additions will be continued, until, in about ten or twelve days, this web-like substance has acquired nearly the same thickness as the rest of the shell.

Fig. 3.



The Cypræa.

Its situation, however, is not exactly the same, for it is beneath the level of the adjacent parts. As their fractured edges remain unaltered, it is evident, therefore, that they have no share in forming the new piece, and it is equally so that the materials must be supplied by the little creature within. Could any doubt exist as to this, it must be obviated by one of Reaumur's experiments. He introduced, through the opening made in a snail's shell, a piece of leather all round the circumference of the broken edges, so as to lie between the shell and the mantle; and the result was, that no shell was formed on the outside of the leather, while the inner side was lined with the secreted substances. The calcareous matter, as it exudes from the mantle, is fluid and gelatinous, but it soon hardens into shell.

Some shells, more uniform and compact in their texture than others, are called *porcellaneous*, from their resemblance to porcelain. In such instances the animal matter is more equally blended with the earthy particles, and, like a cement, binds them strongly together. The carbonate of lime, too, assumes more or less of a crystalline arrangement. Sometimes the particles have the shape of *rhombs*, and are composed of three distinct layers, each of which is formed of very thin plates, marked by oblique lines, which show the direction of the crystalline fibres, so arranged as to give strength to the shell, and that on a principle which has latterly been applied to the building of ships. In other cases the crystals are *prismatic*, generally hexagonal, and the fibres are short. So perfect was the crystalline appearance in a shell brought from Sumatra, that some fragments of it were actually mistaken for a mineral production. Certain animals, which fix themselves to rocks, and whose shell has too little solidity to resist the shocks to which they are frequently exposed, obviate this weakness by doubling the outer surface of the shell, from a bed of stones, or from fragments of other shells, and similar substances. This precaution, which has given them the name of masons and brokers, shelters them from the shocks they would otherwise endure, and serves them, also, to deceive the eager eye of the fish which seeks for them, and which can only perceive the substances they thus employ. The broker shows little symmetry,

Fig. 4.



Chambered Shell of the Pearly Nautilus.

but much art, in the construction of his second shell. The mason, on the contrary, arranges his stones symmetrically, and in

a regular spiral, in beginning by the little flints which occupy the centre, the summit of the shell, and in finishing the structure with the larger pieces, which can cover and mask the opening.

The shell of the Nautilus is not simply hollow: if a section be made of it, it will prove to be divided into numerous regular chambers, the last, or largest of which only, encloses the body of the animal. A tube, partly shelly, and partly membranous, traverses these various apartments, and is continued into a cavity on the body of the animal, which, freely communicating with the branchial cavities, and receiving water from them, can, by its contraction, transmit that element through the tube into the chambers of the shell.

These chambers are said to contain air generated by the Nautilus, and, being thus filled with a fluid more buoyant than water, they enable the animal to float, notwithstanding the density of the shell; but when the animal wishes to sink, it forces water through the tube, thereby compressing the air, and immediately becomes heavier than the surrounding medium. What an admirable arrangement is this! It enables the Pearly Nautilus to float at pleasure on the surface of the deep, enjoying the light and warmth of the sun; and, should danger threaten, instantly to sink to the bottom of the sea, and there to rest perfectly secure. The engraving presents a section of the chambered shell, with the animal in its last compartment. The dark line shows the course of the tube. (Fig. 4.)

A great number of shells present *striæ*—streaks, or fine thread-like lines—which indicate the successive additions made to the shell. The edge of the opening of shells is more or less completely formed, and exhibits, in some species, during their early state, a thin and fragile lip, which thickens with age, and forms often a sort of border.

The various and often splendid hues of shells are to be traced to glands situated on the margin of the collar or mantle, for the purpose of depositing colouring matter. In many instances, an accordance has been marked between the patterns, or tracings on the shell, and the colours as arranged in the organ that secretes them. In the Banded Snail, for example, there are just as many coloured spots on the edge of this organ as there are zones on the shell; and if a part of the margin of the shell be removed, the piece reproduced is brown opposite to the dark portion of the organ, and yellow in other parts.

The glistening, or silvery appearance, which some shells exhibit on several parts of their inner surface, is caused by the peculiar thinness, transparency, and regular arrangement of the outer layers of the membrane, which, with particles of lime, enter into their formation. To this combination has been given the name of "mother-of-pearl," from the idea that it was the material of which such gems are formed. But, though it is true that pearls are actually composed of the same substance, yet these bright colours are proved to be the effect of the light falling on the parallel grooves that arise from the regular arrangement in the successive deposits of the shells. This is placed beyond all doubt by the fact, that, if an accurate impression of the surface of mother-of-pearl be taken in shell-lac, sealing-wax, fusible metal, or gum-arabic, each of these substances will acquire the same iridiscent property.

A beautiful provision for the security and comfort of the animal remains to be noticed. When the inhabitant of a spiral shell retires within it, the part of the body situated at the mouth of the dwelling would be exposed to injury, but for this peculiar and admirable defence. The animal is, therefore, prepared to construct a separate plate of shell, just adapted to fit the aperture, and called an *operculum*, or lid. In some instances this plate is attached to the shell by an elastic spring, so that the plate may either close or open the entrance as occasion requires.



Large Shell from the Mediterranean, with its byssus.—Helmet Shell from Madagascar.—Shell from Malabar.—Fine-thorned Murex.

A temporary partition, which is sometimes formed, answers its purpose equally well. Thus, when winter approaches, the garden snail prepares itself for passing that season in a torpid state, and for this purpose it chooses a safe retreat, retires completely within its shell, and then forms a plate for its defence. It afterwards constructs a second partition, placed more within, and a little distance from the first. When, for the sake of experiment, while the snail is in full vigour, at any other season, it has been surrounded with a freezing mixture, the snail sets about its defence, and in an hour or two accomplishes its task. When the genial warmth of spring penetrates its abode, the snail secretes a mucous fluid, which loosens the adhesion, and the plate is thrown off by the pressure of the foot. The shells in the engravings on the opposite page, with the exception of the one at the top, are *univalves*, or those formed of one piece. The Helmet-shell, just below it, is one of a tribe employed by artists for the fine sculptures which they call shell cameos. They even form, in consequence, an important branch of commerce. The shell lower down, to which the French have given the generic name of "Placune," as very slender, is of the species employed in all the churches of Goa, on the coast of Malabar, but more rare, and of a brown colour. The Murex is a pretty shell, common in the seas of China, but often difficult to discover, because of the thorns that beset it, and which at the extremity, are long and abundant.

The *Crown Volute* (on this page) is one of the largest of the univalve shells; it is brought from the Philippines and Moluccas. The *Imperial Volute* is more rare, and highly valued on account of its beauty; its name is owing to the crown of points which adorn its anterior extremity; its common name is "the Crown Imperial." Certain of the mollusca have the singular property to collect about them all the bodies that are near, often attaching to themselves little shells, of which an example is given in the *Trochus agglutinans*, common in the Antilles, and sometimes found in the Indian seas. Another *trochus*, presented to view, from the seas of New Holland, has not this agglutinating property. The last figure on this page exhibits the *Pholas*, of which we shall give a more particular description at another time.

Shells, of which a brief, but, it is hoped, interesting and instructive account has now been given, beautiful and varied in themselves, acquire a fresh interest when regarded as the habitations of living beings. These are the animals usually termed *molluscous*, or the *mollusca*. The term is derived from the Latin word, *mollis*, soft, and denotes those creatures which have not the hard covering common to others. Such are snails, oysters, and mussels. The simplest name they bear is that of *mollusks*.

The bodies of mollusks, notwithstanding their softness, are composed of organs, which may be easily distinguished, and exercise divers functions. Thus we may observe their muscles, often numerous, their digestive tube and its accessory parts, their nerves, and their systems of circulation and inspiration, both of water and of air. If, however, the more complicated of them seem, in some degree, to approach to fishes, it is necessary to remember that the difference between these two divisions of animated nature is great and unalterable.



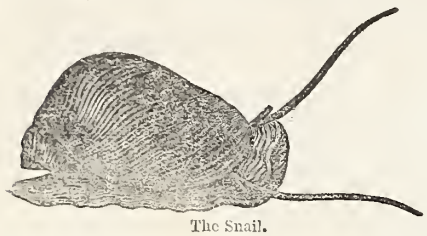
Crown Volute.—Imperial Volute.—Trochus Agglutinans.—Trochus, from the Seas of New Holland.—Pholas.

Some mollusks have a distinct head, and are designated by a corresponding name, CEPHALA. Others have no head apparent, and their headless state is denoted by the term ACEPHALA.

Their skin, more simple in its construction than that of vertebrate animals, is always soft, and covered with a viscous matter, which the animal secretes. It is very sensitive, and more or less smooth, and by its means, whenever the creature is disquieted, it can withdraw itself into its shell. Sometimes the mantle presents

one or two openings, or some prolongations, called *siphons*, which extend more or less beyond the shell, and may also be retracted.

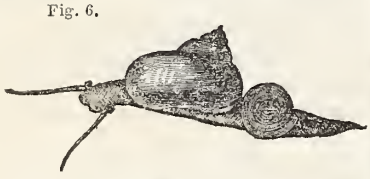
Fig. 5.



The Snail.

They are terminated at their opening by a crown of papillæ, somewhat like the small protuberances on the human tongue, through which passes the water necessary for the mollusk. The siphons serve also, in part, as instruments of touch.

Fig. 6.



The Snail's Journey.

The thickness of the mantle varies greatly, as it does in other respects. Its edges are simple, divided, or fringed, and sometimes provided with appendages, more or less developed. The secreted matter is more abundant at certain epochs, as appears from the form of shells like that in the engraving (Fig. 10).

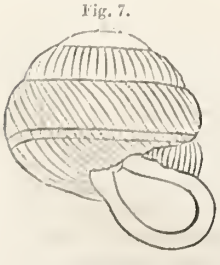
The shell, in some of these creatures, is composed of two pieces, called valves, which have one or two principal muscles, situated at the extremities, or at the centre of the pieces. By their contraction, these muscles are in constant antagonism with an elastic ligament, forming a hinge or turning point, designed to separate the free edges of the valves, and to act as a spring which shall bring them close together, and then be at rest (Fig. 9).

The remarks now made on the muscular system apply only to those animals whose shells are composed of two pieces, and which are, in consequence, called *Bivalves*. The others, of which the shell consists of one piece, are denominated *Univalves;* and those especially, which have arms, have more numerous muscles still, which are indispensable for the movements of their organs; and it is necessary that there should be a special and powerful muscle, that the animal may retire into its shell, which is often deep and spiral. There is also a species in which the shell is formed of many pieces, hence called *Multivalves;* and which, therefore, have muscles adapted to the movements of each one of its parts.

Some mollusks are firmly fixed to the rocks, by a calcareous exudation from the shell; and clusters are often thus cemented together, forming greater or smaller masses. Others attach themselves to the rocks by a cable or byssus, of which we have a familiar example in the mussel. This cable consists of threads, which exude in a glutinous state from one of the organs of the mollusk at the base of the foot (Fig. 14).

The mouth of mollusks, of which the form is various, is not always very visible, although it exists in those mollusks whose head is not distinct. It presents, generally, a little longitudinal or transverse furrow. In many, no trace is found of teeth; others have jaws which are horny, and provided with teeth. The mouth is composed, in some species, of a ring, of which the borders are fringed; in others, it appears at the centre of a semi-circular hood.

Fig. 7.



Univalve.

Fig. 8.



Bivalve.

Various means are also provided for bringing food to the mouths of these creatures. Some have, for example, a proboscis, which may be observed stretched out to grasp some prey; and at others it pierces the shells of other mollusks, to suck out the flesh of their inhabitants. In some instances, the lips of the proboscis are furnished with strong hairs.

The stomach is often in the head of mollusks; in some it is simple, and in others complex. In some species it is enveloped

Fig. 9.



Muscles.

Fig. 10.



Spire-like Shell.

Fig. 11.



Mollusk, with a head

with muscles so very thick, that they have been compared to those of the gizzard of birds. In the headless mollusks, the stomach is, so to speak, only a cavity in the tissue of the liver, which secretes readily and abundantly the bile necessary for digestion; while in the mollusks, that have heads, the liver is always distinct and separate from the stomach, which it sometimes envelopes. The intestines are also enveloped by the liver.

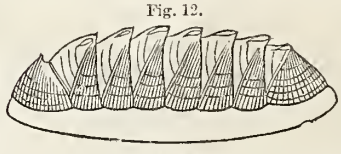
The process by which the food is converted into chyme has not been satisfactorily traced. The blood is white, or, rather, of a blueish colour. The circulating system of mollusks exhibits very remarkable differences in the different classes, but in all of them there is a ventricle; though the other parts of the heart are not of constant occurrence.

Those which respire by means of lungs are few in number, and form a very natural tribe. In them the respiratory organ is simple, consisting of a single cavity, in the walls of which the extremities of the pulmonary artery are spread. This cavity communicates externally by an aperture which the animal can open or shut at pleasure.

Those which breathe by means of gills exhibit very remarkable differences in their number, structure, and position. In some cases there is a single cavity communicating by an aperture, through which the water enters. The walls of this cavity exhibit an uneven surface, dispersed in ridges, which are the gills, and on which the pulmonary artery is expanded.

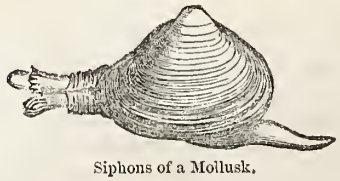
In mollusks, the nervous system is less complicated than in the higher classes, and the brain is not restricted in its position to the head. It appears in the form of gauglia, or tumours and filaments.

Fig. 12.



Multivalve Shell.

Fig. 13.



Siphons of a Mollusk.

Fig 14.



Byssus for the attachment of a Shell.

The principal ganglion, to which the term brain is usually applied, is seated above the gullet, or entrance to the stomach. It sends out nerves to the parts about the mouth, the arms, and the eyes.

The head of a number of mollusks is surmounted with fleshy appendages, depending from the skin; a species of arms, which partially resemble those of insects. They have received the name of arms, and are special organs of touch. They are endowed

with extreme sensibility, and readily contract, like those of a snail.

In other instances, the arms are more or less long, and numerous; they are furnished with suckers, by means of which the animal fixes itself to a body, and then holds it firmly.

(*To be continued.*)

THE CATHEDRAL OF NOTRE DAME D'EVREUX, IN NORMANDY.

(*See Engraving, page 73.*)

At the Cathedral of Notre Dame d'Evreux, a strange custom anciently prevailed, which was called the ceremony of St. Vital. On the first day of May, in each year, the chapter went in procession to a wood near the town, called the Bois-l'Eveque, and cut off branches from the trees with which to adorn the images of the saints. At first the canons themselves went in person, but afterwards they sent the choristers instead; then the chaplains of the cathedral joined in it; and, last of all, the curates of the parish. It was called the "Black Procession." The choristers, who regarded the whole affair as a good piece of sport, wore cassocks and square caps, and were preceded by the boys of the choir, the apparitors, and other servants attached to the cathedral, each with an axe or pruning-hook in his hand, for the purpose of cutting down the branches. On their return, they pressed the country-people into their service to carry back the boughs to the church; and as they held them elevated over the heads of the party, it had very much the appearance "of Birnam Wood coming to Dunsinane." In the meantime the church bells were kept loudly ringing, to let all the neighbourhood know that the ceremony was being performed, and that May had begun.

Upon one occasion, however, the bishop forbad the ringing of the bells, but the choristers drove out the sextons, and kept the gates locked during the four days of the ceremony, ringing all the time with all their might. Two of the canons climbed up from the chapter-house to enforce the bishop's orders, but they were immediately seized, and ropes being passed under their armpits, they were allowed to hang from the windows of the tower in this position for a whole day. This occurred about the year 1200.

The "Black Procession" was the occasion of many abuses, and gave rise to all sorts of extravagancies. They made a practice of throwing bran in the peasants' eyes whom they met on the way, and made some leap over a broomstick, whilst the others danced. Afterwards they began to wear masques, and the *fête* formed part of the "*Fête de Fous*," or Fool's Festival. The choristers having returned into the church, took possession of the stalls of the canons, who then took to flight, and went to play at skittles, sing, and dance in the vaults.

A canon named Bouteille, who lived about the year 1270, left money for an *obit* or service for the repose of his soul, on the 28th of April, the day on which the *fête* which we have just been describing began. He bequeathed a large sum to be distributed amongst the canons, chaplains, choristers, and others, who might take part in the service; and he desired them to spread on the floor of the church during its performance a large pall, upon the four corners of which there should be laid four bottles of wine, and a fifth in the middle, the whole for the use of the singers in the choir. This curious testament caused the name of the wood to which the Black Procession went to cut the branches to be changed from "*Bois l'Eveque*" to "*Le Bois de la Bouteille*," or "Bouteille's Wood."

To preserve the wood from total destruction, an arrangement was afterwards made by the bishop, by which some of his own servants were commissioned to count the number of persons taking part in the procession, and having cut down one branch for each, to distribute them at a cross which stood upon the roadside close at hand. During this distribution they drank and ate a sort of biscuits called "jaw-breakers." The bishop's guard, before anything had taken place, made near the place two figures resembling a bottle, and buried them in the earth, filling up the hole with sand, in memory of the founder of the *obit*, Bouteille (*bouteille*, a bottle).

These strange facts are related by a priest, writing in the *Mercure de France*, in 1726. The cathedral, however, is more remarkable for the great beauty of its architecture and its sculptures than the singularity of its historical reminiscences. It has been so many times laid in ruins, that it is now impossible to form an idea of what it was originally. It was destroyed by Henry I. of England in 1125, but he ordered it to be rebuilt in a style of so great magnificence, that an old French chronicler declares that it was the most beautiful of all the churches of Normandy. It does not appear, however, that it was entirely reconstructed by Henry; some of the arches of the nave appear to have been built in the time of William the Conqueror by Bishop Gislebert. The nave was completely restored by Robert de Roie, Bishop of Evreux, in the time of Philip Augustus.

The choir and the parts adjoining were rebuilt by the contributions of King John, Charles V., and the bishops and counts of Evreux, after the devastations inflicted by the English. Louis XI. placed in it the lantern and bell, called "the silver bell," from the sweetness of its sound. To him also are due the transept on the southern side, the chapel of the Virgin, the sacristy, the vestry, the repairs of the library, the galleries of the choir, and the arches which surround them, the cloister, the ornaments on the sides of the nave, and the pillars opposite the chapels.

The northern front, which is represented in our engraving on page 73, and the greater part of the large tower, were built by Bishop Ambrose. It was completed in 1636, by means of a legacy bequeathed to the cathedral by the Sieur Martin, a chaplain and notary apostolic. About the year 1608, Henry IV. made a gift of 4,000f. to hasten its completion. The southern tower was built about the middle of the fifteenth century.

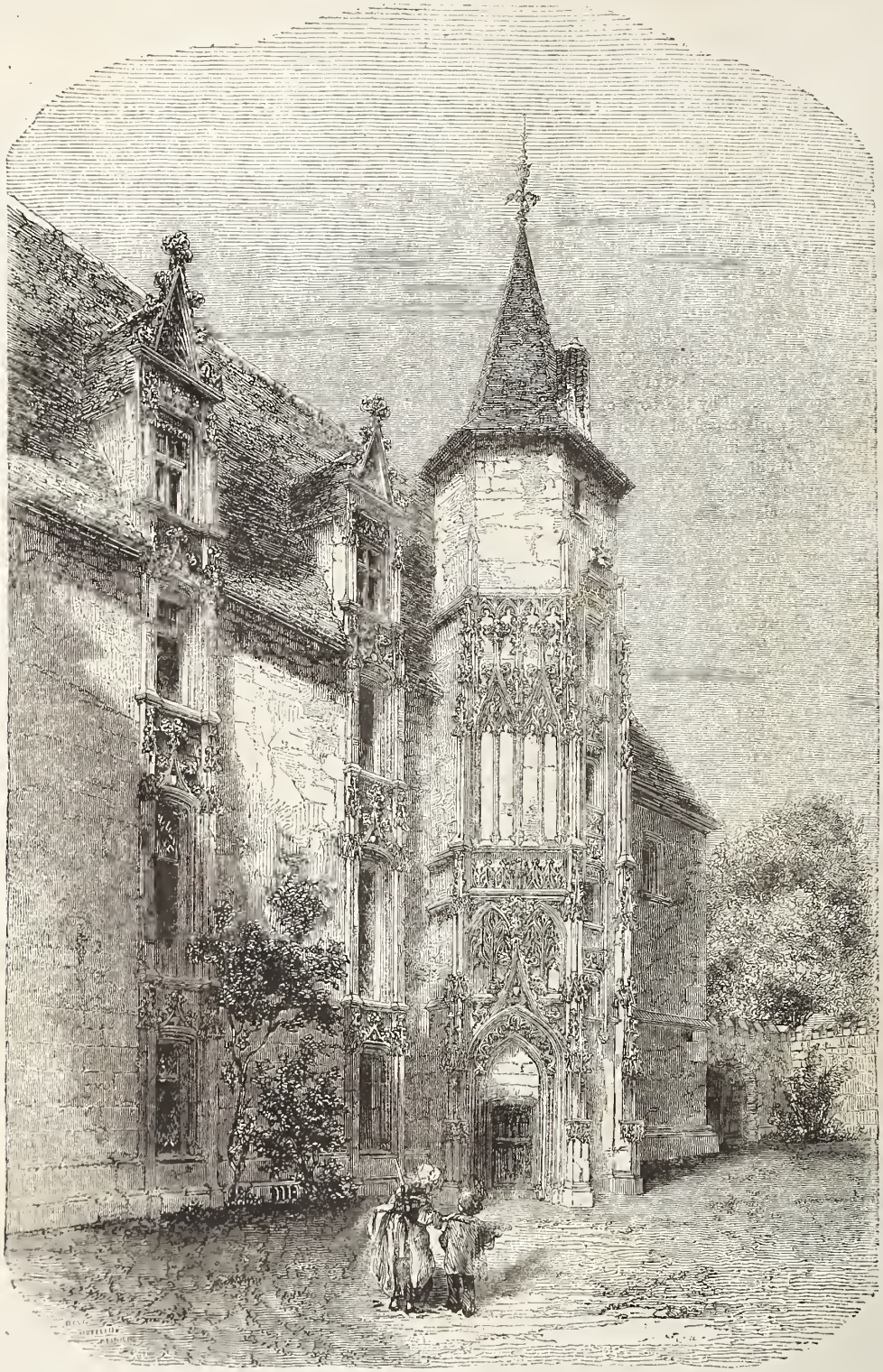
Before the revolution there was a statue of Henry I. of England, holding in his hand a roll of parchment, to commemorate the donations made by that prince to the bishop and chapter, of the churches and tithes of Verneuil and Nonancourt, and of the lands and barony of Brandfort in England.

Sculptures in wood of exquisite workmanship adorn various parts of the church, particularly the ceiling of the vestibule, which is divided into compartments, filled with foliage, figures of birds, and flowers, in a style of great chasteness and delicacy. On all the chapels, the great gates which stand at the entrance to the choir, the wainscoting in the interior, and on the halls, groups of satyrs, of monks, croziers, &c., meet the eye at every step, all executed in the first style of art.

The treasury is considered one of the finest pieces of smithwork in France. The gratings, bolts, and the padlocks of the gates, are wrought with extraordinary richness of design and beauty of finish. The stained glass windows are valuable, not only as works of art, but in an historical point of view. The oldest of them was put up in the fourteenth century, and the last in the sixteenth. They contain portraits of many of the bishops, of Charles the Bad King of Navarre, and of Louis XI. of France.

The see of Evreux formerly included 540 parishes and 11 abbeys, without counting a great number of collegiate churches, priories, and chapels. The bishop also possessed four baronies; one of the suburbs of the town of Evreux was within the limits of one of these, and the inhabitants were obliged to wear a small crozier embroidered or sewn upon their coats, in token of their vassalage. The bishop had also the right of taking part in the election of the principal of the college of Evreux, who was always a canon of the cathedral. The college was composed simply of five classes in *belles lettres*, and was exclusively in the hands of ecclesiastics.

When a new bishop came to take possession of the see, he set out for the cathedral from the abbey of St. Taurin. He was conducted by the clergy to his palace, and he there received his crozier from the hands of the canons, headed by the eight seniors, who took the title of barons, from their each possessing an eighth of the barony of Angerville. By the terms of his tenure, as a vassal of the see, the Lord of Feugnerolles was obliged to cover the road for some distance from the town with straw, on the day on which the bishop was expected to arrive. On a bridge



REMAINS OF THE BISHOP'S PALACE AT EVREUX.

in the vicinity the bishop received the oath of fidelity from him and the chapter, the seigneur swearing "to protect him against all his enemies, except the king." Having reached his official residence, the bishop gave a banquet to two hundred persons, at which the seigneur acted as cupbearer, presenting the bishop with a gilt silver cup, valued at four marks, which he always received as a present immediately afterwards. The episcopal palace, where Henry IV. stayed for some time in 1603, does not at the present day present anything worthy of remark, except the elegant sculptures which adorn the windows.

All these details throw some light upon the curious relations existing between the church and the people under the old *regime* in France; and, notwithstanding all that has been said on the other side of the question, there can be no doubt that, of all the abuses which the revolution of 1793 swept away, none was more deserving of censure or removal.

WOOD-CUTTING IN THE FORESTS OF THE ALPS.



The woodsmon are, in this country, almost an extinct race. They have disappeared before the farmer. The splendid forests of oak which once covered our island, and afforded shelter to the deer, the wild boar, and the wolf, have vanished one by one, and the ploughman and his teem now slowly traverse the spots on which outlaws may have once feasted on venison in the "merrie grene-wood," and washed it down with home-brewed ale. In a comparatively level country, like England, where the climate, though variable, is always temperate, life in the woods must have been at all times pleasant, though perhaps laborious. But in the elevated valleys of Jura, of Switzerland, and of Savoy, the great rigour of the winter, the badness of the roads, and the ruggedness of the soil, make wood-cutting a painful and dangerous task.

When the trees are growing on the side of steep inclines, or in the neighbourhood of precipices, it requires no small amount of courage and dexterity to fell them in such a manner that they may

not fall to the bottom of the ravine and be lost. The approach of winter, also, is so sudden, that trees are often abandoned which have been already half-cut down. Often, when they have been felled, there is no time to saw or dress them, and the work must be left unfinished until the return of spring. But the labours of the hardy race who people the districts bordering on these wilds have not failed to produce their effect. Many of those vast slopes which, at the beginning of the present century, were thickly covered with pine forests, are now reduced to bare pastures, affording a scanty subsistence to herds of lean and wretched-looking cattle. Foreigners have purchased large tracts, the timber of which has been cut down and floated down rivers and lakes to the sea for exportation. The destruction of the trees not only injures the appearance of the country, but leaves the valleys exposed without shelter to all the fury of the north wind, and thus the growth of the crops in spring is retarded, and the snow and ice melt much more slowly. But perhaps the most important objection to the wholesale cutting of the forests is found in the fact that they were a never-failing protection against avalanches. It was rarely that one of these tremendous masses was able to force its way through the dense pine groves which lined the sides of the mountains; or, if it did, its progress was necessarily so slow, and the noise so loud, that the inhabitants of the villages were enabled to make their escape in time. But now that these trusty guardians are gone, they have been compelled to erect other safeguards, at great expense, by digging immense trenches, or embankments, and driving in huge piles and stakes. The inhabitants of many of the valleys are now reduced to the greatest straits, during the winter months, for want of firewood. In that of Urseren, near St. Gothard, briars and heather are now the only substitutes for the vast masses of pine that once crowned the heights all around. In many places, too, while the forests were in existence, the supply of rain in summer was regular and plentiful, but now that they have disappeared, the fountains are all dried up, and the people are obliged to preserve the water in cisterns with great labour and expense.

Land-slips are also every day becoming more numerous. The melting of the snow sometimes loosens the soil, and causes large masses to slip from the side of the mountain, carrying ruin into the valley beneath. Most of these catastrophes occur in consequence of the destruction of the trees, and the consequent decaying of the roots, which had given firmness and consistency to the clay and rocks on the mountain side. In one commune, in which the forests were cut down to leave room for the sowing of corn, the whole district glided down from the side of the mountain in this way, filling the inhabitants with terror and affright.

Travellers, who have seen in the beginning of the present century the forests of Engadine, of the valley of Calanca, in the Grisons—that of Habkeren in the canton of Berne, of Alpnach in that of Unterwald, and many others both in Switzerland and the neighbouring countries, would now be astonished at the wide-spread desolation of the scene.

The cause of these clearings is to be ascribed in the main to the want of wood, not for firing merely, but for the construction of houses, farm offices, &c., which of course frequently need repair and renewal, and are besides very liable to fire. At the same time no part of the world contains a better supply of stone for building; but as wood is a material more easily obtained, it is probable it will continue to be used until the last tree has been felled. The peasantry, with great want of foresight, never exercise the slightest economy in the use of fuel. Separate fires are frequently lighted at the same time in the houses of small farmers for several different domestic purposes, one for baking bread, another for drying fruit, and perhaps another for cooking the food. The prospects, therefore, of the people are anything but favourable. It is dreadful to contemplate the misery which may follow the total destruction of the forests, particularly as there is nothing to warrant the belief that coal can be found in Switzerland in quantities at all sufficient to supply the wants of the inhabitants. Attempts have been made by benevolent individuals to ward off the calamity by sowing new seed as fast as the trees are cut down, but no sooner has it been done than it has been all rooted up and scattered by the village children; and it is not by any means probable that any united effort will be made by the peasantry to remedy the evil until all effort has become useless.

Our engraving may give the reader a good idea of scenes of every-day occurrence in the forests of the Alps. The men of the family sawing, splitting, and cutting; the wife or daughter looking on with folded arms; while the little boy is warming the soup which he has brought for the woodsmen's dinner.

The labours in which the woodsmen are here engaged will furnish materials for employment in the long nights of winter, when everything out of doors will be cold, cheerless, and dreary. After a certain portion of each tree has been split up and stored for fuel, the remainder is cut into thin lathes and made into baskets, tubs, casks, &c., for sale in the neighbouring towns, and the task is lightened by joyous and lively conversation around the blazing hearth.

THE SCIENCE OF SHELLS.

(*Continued from page 79.*)

The state of a shell is entirely dependent on the form, position, and extent of the secreting organ. This is asserted in few words, yet what mysterious operations do they indicate! Let any one look at the immense variety of form which is apparent in a collection of shells, and the consideration that the differences are attributable to proportionate peculiarities in the size and the functions of the mantles covering their inhabitants, cannot fail to excite great astonishment, and to call forth admiration of the Infinite Wisdom which is discoverable in them all.

Even in the egg, the first shell of the little creature is formed. Its simplest shape is a concave disc. But it has to grow with the mollusk's growth; and for this the arrangement is perfect. It is easy to imagine the animal covered with its mantle, expanding the border of this organ, and stretching it beyond the edge of its dwelling—the concave disc, for example—that it may form there a new layer of shell, which shall extend a little way beyond its circumference. It is the same with succeeding layers, each of which being larger than the one preceding, projects in a circle beyond it; and the whole series of these layers forms a compound cone, exhibiting transverse lines on its outer surface—a sort of calendar, in fact, of the successive additions made to the shell, exactly corresponding with the growth of the inhabitant.

It is also worthy of special notice that the apex of a cone is first formed, thus affording the protection that the minute creature requires on its extrusion from the egg. It may generally be distinguished from the parts afterwards formed by its colour and appearance. The succeeding turns made by the shell, as its inhabitant grows, enlarge its diameter as they descend, and form, by degrees, a wider base. As, too, the body extends towards the mouth of the shell, its posterior end frequently leaves the first turn of the spire, and takes up another situation, when the cavity is filled up with solid calcareous matter, as hard as marble.

The shell, whatever its form or character, is specially adapted to its inhabitant. If, for instance, the head of the snail be considered as in front, the left side of the mantle is more active than the right; so that the lateral turns of the spiral occur in the same direction, thus making due provision for the situation of the heart and the great blood-vessels. But, in the few species which have the heart on the right side, the turns of the spiral are made to the left. The entire history of the inhabitants of shells might be given, indeed, as exemplifying this perfect adaptation of the structure to its inmate.

The mantle frequently expands, and that very suddenly, into a broad surface, and adds to the shell what may be termed a large lip. Sometimes, as soon as this is accomplished, the same part shrinks, and the mantle retires a little way within the shell, still continuing to deposit calcareous layers, which give greater thickness to the adjacent part of the shell, at the same time narrow its aperture, and materially alter its general aspect and shape. So much is this the case, that the shells of the young and of the

old mollusks are very different, and would not even be recognised, by a casual observer, as belonging to the same tribe.

Fig. 15.



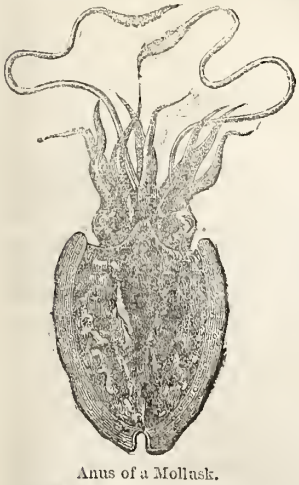
Organs of Digestion, Respiration, and of Circulation, in the Octopus or Poulpe.

Shells frequently have projections: some like thorns; others have ridges; and others rounded protuberances. Those having spines, are called *spinous;* the ribs, which are formed at the various growths of the shell, are named *varices;* and when there are rounded projections, the shells are said to be *tuberculous.*

In some instances we may observe a hard, semi-transparent, calcareous substance, having a glassy appearance on the inner surface of shells; its thickness increasing as the apex is approached, and, in some instances, the spire, which was a hollow space, with thin sides, becomes entirely filled up. The purpose of this is sufficiently obvious. The mollusk is exposed to the violence of the ocean, and hence its shell is rendered proportionately solid and secure. Another mode is apparent, when the mollusk suddenly withdraws its body from the apex, and builds a wall across the cavity, so as to afford itself protection.

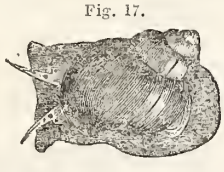
Some mollusks are ovoviviparous, that is, the eggis hatched within the body, and the young are extruded alive. In this respect they resemble some reptiles, as well as some quadrupeds. Others are oviparous, that is, the egg is extruded from the body entire, and subsequently hatched. So it is with fowls, and many reptiles. The eggs, as the engraving shows (Fig 23), are of various forms, and often have a foot. Snails, during the spring, deposit a great number of eggs, of the size of little peas, in humid and shady places, at the foot of trees, among roots, and under stones. These eggs are hatched in twenty or thirty days, and the little creatures go forth perfectly formed. The plants in gardens suffer greatly for their support, unless their enemies, the birds of passage, are numerous, by which they are eagerly devoured. Oysters are amazingly fruitful; one of these is said to contain 1,200,000 eggs, so that a single oyster might yield enough to fill 12,000 barrels. The eggs are expelled in the form of spawn—a

Fig. 16.



Anus of a Mollusk.

Fig. 17.



The Horns.

Fig. 18.



Teeth of a Mollusk.

white fluid, resembling a drop of grease, in which the microscope reveals innumerable minute oysters. This substance is called "spats" by the fishermen, and the matter in which they swim

Fig. 19.



Nervous System.

Fig. 20.



Stomach of a Mollusk.

Fig. 21.



Heart of an Oyster.

doubtless serves to attach them to various submarine bodies, or to individuals of their own species. In this way are formed immense banks of oysters, which are kept up by collecting the spawn at sea, and in different places along the coasts of England and France, and depositing it in the sheltered and shallow waters selected for "oyster layings," which are usually kept untouched till they have arrived at some size, that is in the course of two or three years.

The principal object in our first large engraving is a madrepore, or coral, growing on the shell of an oyster, to which it has accidentally become attached. This is one of the products of the polyps, or lithophytes, minute creatures, often adorned with beautiful colours, which require the influence of light and the rays of the sun for their operations, and consequently, never lay the bases of their calcareous tenements in the dark and stilly depths of the ocean. And yet, corals form not merely small trees, but vast beds, often upwards of a hundred feet in thickness, and even more, still covered by the water, and constituting a sunken reef; while again, on the contrary, as on the shores of Timor, near Coupang, they form a bed from twenty-five to eighty feet in thickness, over rocks elevated above the level of the sea. Well have they been described by Montgomery, as—

> "Unconscious, not unworthy, instruments,
> By which a hand invisible is rearing
> A new creation in the secret deep."

In the South Sea and Indian Ocean the rock-forming madrepores are most abundant. In the Red Sea coral reefs are very numerous, and are usually found extending in a straight line parallel to the coast. They differ from the coral formations of the Pacific, inasmuch as they never exhibit a circular form, nor contain a lagoon in the centre. In many places they unite with the coast, which they thus render inaccessible; for though immediately beyond them the water is often very deep, yet but a few feet of water covers them, and in this way they have blocked up bays or harbours, into which, in former times, vessels could freely enter. In other cases the reefs are unconnected with the shore, and often at several miles distance. Towards the sea they

Fig. 22.



Deposition of Eggs.

Fig. 23.



Eggs of Mollusks.

sink abruptly, and the water is very deep; but they gradually slope on their side towards the land, and the strait thus formed

will admit vessels of moderate burden. The water here is generally very tranquil, being less influenced by the winds, which, during the greater part of the year, regularly set in at certain times of the day, and strongly agitate the main sea. Besides these larger reefs, there are others, of variable size and isolated character, dangerous to the navigator. Coral reefs more or less surround the shores of the Isle of France, the Papuan, the Marian, and the Sandwich Islands.

The shell to which the madrepore appears attached in the engraving is one deserving of special notice. It is that of the pearl oyster. The specimen, of which a representation is given, was brought from the Isthmus of Panama. Such oysters are found, however, in other places. But though pearls are procured in great numbers about Cape Comorin and the Island of Ceylon, they are, like those obtained in different parts of America, in the islands of the Southern Ocean, as well as on the shores of France and Britain, inferior to those brought from the Persian Gulf.

The inside of the oysters that produce the pearls bears a certain resemblance to the gems themselves; and hence it appears that they are only the misappropriation of the matter which is secreted by the animal to form the shell. When a pearl is cut through, it appears to consist of several coatings of this matter laid one upon another, as if formed by successive depositions. If, therefore, the substance of which shells are composed, while floating in the body of the mollusk, meets with a particle of this kind, which has accidentally been removed from the proper passages and become stationary, it may be imagined that it will adhere to this particle, form a layer about it, and, continuing the operation, one of those white pellucid balls we call pearls will be the result. Of the finest pearls, the weight of one carat, or four grains, is worth eight shillings; but should a pearl weigh four carats, its value is estimated at £6 4s. Some of these gems are, however, of extraordinary worth. A pearl brought, in 1574, to Philip II., though no bigger than a pigeon's egg, was valued at £14,400. Julius Cæsar presented Servilia, the mother of Brutus, with one that cost £48,457; the pearl ear-rings of Cleopatra were estimated at £161,458; Claudius possessed one of nearly equal worth; and Lollia Paullina, a celebrated character in the reign of Tiberius, wore two pearls of such immense value, that the historian describes her as carrying in her ears the worth of a large estate.

Just beneath the oyster with its pearls, will be observed the *Fusus longissimus* and the *Voluta Junonia*, which inhabit the depths of the Indian Ocean. The former is of a very pure white, the latter is nearly colourless, and is adorned with brown spots,



Madrepore, or Coral, fixed on a Mother-of-pearl Oyster.—Fusus Longissimus.—Volute.—Horned Murex.

very regularly placed. It is of great value, and it is supposed that there is only one specimen of it in the collections of Europe that one is in the French Museum of Natural History.

The remaining figure is a *Murex*, or rock shell, of which genus there is a very great variety. They are generally of an irregular form, arising from their surfaces being covered with spines, tubercles, or horns. The latter is the case in the present instance; hence the animal is named *Murex cornutus*.

One of these creatures yielded the far-famed Tyrian purple. Of all the ancients, the people of Tyre were the most successful in preparing and using this celebrated colour. The Mediterranean supplied them with mollusca in abundance, and, in order to produce the tint that was in highest estimation, a bath of the liquid extracted from the animal was prepared. In this they steeped the wool for a certain time. When taken out they im-

mersed it in another boiler, containing an extract from another mollusk, the Buccinum. Wool subjected to this double process was so highly valued in the reign of Augustus, that each pound of it sold for about £36. Nor is its enormous price surprising when it is recollected that only a single drop of the colouring fluid is afforded by each animal.

On this page several other interesting objects are exhibited. Two large shells, an *Ostrea* and a *Spondylus*, appear naturally united. Just below is seen a large species of *Helix*, or snail, and beneath it a broken egg, disclosing the shell in its earliest state. Another creature will also be observed. It inhabits the deep waters of the Mediterranean. Its colour is a very fine blue, and the whole surface of its body is covered with spines. On the under side there is a very thin shell, beautiful in form, very transparent, and of a milk-like whiteness. It is known under the name of the *Carinaire* of *Lamarck*. The shell which appears at the right, of a conical figure, is still more rare, the French Museum possessing only a single example. It is called *Carinaire vitrée*.



Ostræ hyotis and Spondylus Delesserti, naturally united.—Snail Shell.—Egg, showing the Snail Shell in its earliest state.—The Carinaire of Lamarck.—The Carinaire vitrée.

Various classifications have been made of mollusks, and to one of these we shall now allude. The first class is formed of the Acephala, or Headless Mollusks; and of these there are three orders.

The First Order comprehends a great number of mollusks which present one common character: two muscles distant one from the other, inserted towards the lateral extremity of the valves. The points of the insertion of these muscles are as if they were grown on the shell, and are indicated by a depression of which the form is variable. This section includes some creatures which employ the foot with which they are furnished, to execute their limited movements; they live in the sand and the slime, and of these the Solen, or Razor-shell (Fig. 24), may be taken as an example. The animal is provided with a long, pliable, cylindrical leg; when he wishes to bore a hole for his residence, he extends this instrument from the inferior end of the shell, using it as a pointed shovel to make the excavation. When the tunnel is partly formed, the animal advances the leg a little further, fixes it by its point as a hook in the ground, and, using this as a fulcrum, descends in safety, continuing the operation till the shell is buried about two inches under the ground. When the animal wishes to regain the surface, the leg is rolled up into a spherical form, and stretched very tight; by means of the ball thus formed the little creature is preserved from slipping backwards, while by its muscular power it throws the shell forward. By ascending its channel when the tide comes in and brings a multitude of little marine insects, it obtains its food.

Some mollusks can dig into wood, and even into the hardest rocks. One of these creatures is called the *Teredo*, or Ship-worm (Fig. 26). It readily enters the stoutest timbers; ascending the sides of the loftiest ships, it most insidiously destroys them; and when a ship is under water, it becomes to these creatures an easy prey.

They begin with the softest part, and so small are the apertures at first as scarcely to be perceptible. Strange to say, a teredo is careful never to intrude on the habitation of a neighbour; nor can any passage be discovered between two openings, though only separated by a very thin partition, when a piece of wood is so excavated as to resemble a honeycomb. They always bore in the direction of the grain of the timber; if in their course they

meet with another shell or knot, they make a turn; when the obstacle is small they wind round it, and then proceed onwards;

Fig. 24.



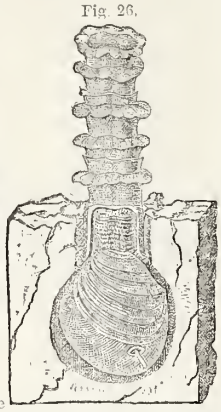
Razor Shell.

Fig. 25.



Muscles inserted towards the lateral extremity of the Valve.

Fig. 26.



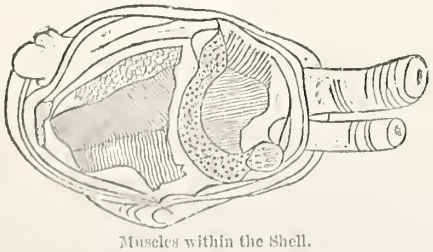
Toredo, or Ship-worm.

but when large, rather than continue any distance across the grain, they make a short turn back in the form of a siphon. They are now common in all the seas of Europe, and continue to do extensive mischief to ships, piers, and all submarine wooden buildings.

Instances are not wanting in which there springs from "partial evil, universal good;" and notwithstanding the ravages committed by the ship-worms, they confer on us no ordinary benefits. As Montague remarks:—"That the *teredines*, and many aquatic animals, were created by the Father of the Universe for most beneficent purposes cannot be disputed; for though they may seem to impede, and even to destroy, the operations of man, yet they are of such importance in the great scale of nature that it has been observed, and it would not be difficult to prove, that we should feel the want of one or two species of larger quadrupeds much less than one or two species of these despicable-looking animals. The immense trees and forests of tropical countries, either overthrown by tornadoes or partially destroyed by insects, and then carried by rapid torrents into the rivers, would not only choke them up, but even endanger the navigation of the neighbouring seas, were it not for these small yet mighty agents of dissolution. Nothing can more plainly demonstrate the power of an all-wise Ruler of the Universe than the work assigned to these animals, whose business it is to hasten the destruction of all useless matter."

Another creature, the Pholas (Fig. 30), is equally remarkable. All the animals of this genus are borers, perforating wood, clay, limestone, and sometimes burying themselves in the sand, thus forming a retreat in which they pass their lives. Their name is derived from a word which means a hiding-place. The largest species and the finest specimens are most frequently found in chalk, which, being the softest of all calcareous substances, admits of a more easy and rapid progress to the animal than the hard stones in which it is sometimes discovered. How it forms

Fig. 27.



Muscles within the Shell.

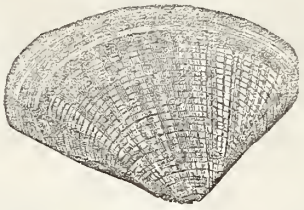
such a dwelling remains to be determined. As the entrance is the smallest part, it is evident that the pholas must have penetrated the rock when it was young and small, and enlarged the opening as it increased in size. The position of the hole is always oblique to the horizon, and it is terminated by a rounded cavity. This cavity receives the body, while the farthest end is occupied by the proboscis, which is continually protruded to the orifice to procure the sea-water, on which the pholas subsists. Many have supposed that the animal possesses some liquid which acts as a solvent on the substance it enters; but as in this there is great variety, the idea by no means solves the existing difficulty. Other mollusks are distinguished by the places the muscles

Fig. 28.



Perforated Shell.

Fig. 29.



Pepper Mactra.

Fig. 30.



The Pholas, or Stone-borer.

occupy in the interior of the shell, of which Fig. 27 is an example.

It is wrong to suppose that the connection between the shell and its inhabitant resembles that between the builder and the house he erects, since it is inseparable during the life of the mollusk. The connection arises, be it observed, from muscles, which going forth from the animal, are inserted in the walls of its dwelling. In bivalve shells, the mollusks are attached by one or two larger and powerful muscles, sometimes called *transverse*, because, passing through the body, they are inserted at opposite points into both valves; and sometimes *adductors*, because they close the valves and keep them shut. The force with which they do so is frequently manifest, as when it requires no little strength to separate the shells of an oyster.

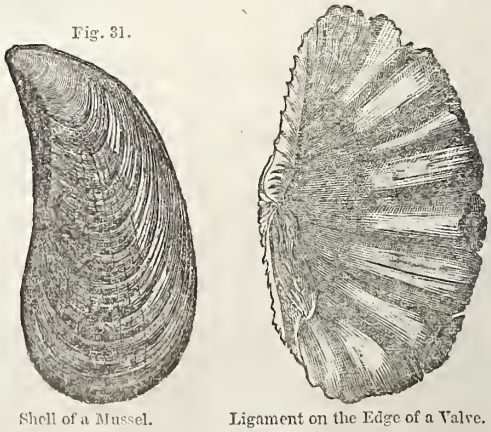
Some mollusks are provided with a foot, which is composed of a mass of muscular fibres, interwoven together in a very complex manner, and resembling the muscular structure of the human tongue. It has, in consequence, a power of motion in all possible directions, and may be readily protruded, retracted, or inflicted; in some instances it has a spongy texture. The animal can, therefore, inject a considerable quantity of water, and thus increase its size.

Another section is formed of those mollusks whose foot is small and compressed. They have a ligament within, with or without an exterior ligament. Such is the Pepper Mactra. (Fig. 29). It is of a yellowish, reddish, or white colour, often stained with black, occasioned by the mud in which it resides. It is chiefly found at the mouth of inlets or rivers, not remote from fresh water; for, though it always seeks a spot within reach of the flux of the tide, it delights in situations over which fresh water occasionally flows. The animal has not the power of progressive motion, but it is enabled slightly to change its position by means of its small compressed and muscular foot.

Other mollusks have only an exterior ligament; the shell is perforated (Fig 28), and more or less gaping. It presents two or

Fig 32.

Fig. 31.



Shell of a Mussel. Ligament on the Edge of a Valve.

more principal teeth on the same valve.

The Second Order of Headless Mollusks is formed of those which have only an adductor muscle which traverses the body,

the point of insertion being marked on each valve. Some of these have a marginal ligament, placed on the edge of the valve, as it is in the following instance (Fig. 25). One of these mollusks weighed no less than 498 English pounds; it furnished a hundred and twenty men with provision for a whole day, and so great was the power of the adductor muscles that the sudden closing of its valves was sufficient to snap a cable asunder. A specimen brought from Sumatra, and preserved at Arno's Vale, in Ireland, had valves measuring four feet six inches in length, two feet five inches and a half in breadth, and one foot in depth. A shell of the same species forms the baptismal font in the church of St. Sulpice in Paris.

Another creature of this order is the Mussel, an animal widely distributed, and appearing on our coast in the greatest abundance. It is gregarious, being found in extensive beds, which are always uncovered at low water. It is found likewise in the crevices of the rocks. In the mussel fishery women and children are chiefly employed, and they detach the mollusks with an iron hook from the beds or rocks to which they adhere by means of their fine cartilaginous threads. In this country they are conveyed directly to the market; but in some parts of France they are kept for a time in salt-ponds, to fatten like oysters, into which, however, they admit small quantities of fresh water. The flesh of the mussel is of a yellowish colour, and considered very rich, especially in autumn, when it is in season. By some persons it is considered deleterious, but it is during the spawning season, in the Spring, that the greatest danger is to be apprehended. This noxious quality was long attributed to the pea-crab, which is often found within the shells of mussels. It is now properly ascribed to the food of these creatures, which, at certain seasons, consists chiefly of the noxious fry of the star-fish, and likewise to a disease from which mussels suffer in the spring.

A curious fact is mentioned by Mr. Stephenson, when describing the erection of the lighthouse on the Bell-rock. On the first landing of the workmen there, the mollusks, called limpets, well known from their univalve conical shell, of a very large size, were common, but were soon picked up for bait. As they disappeared, an effort was made to plant a colony of mussels, from beds at the mouth of the river Eden, of a larger size than those which seemed natural to the rock. These larger mussels were likely to have been useful to the workmen, and might have been especially so to the light-keepers, the future inhabitants of the rock, to whom that mollusk would have afforded a fresh meal as well as a better bait than the limpet; but the mussels were soon observed to open and die in great numbers.

The reason of this was not easily discernible. For some time, it was ascribed to the effects of the violent surge of the sea—a notion which was not, however, free from objection. At length it was ascertained that the *Buccinum*, or Whelk, had greatly increased, and proved a successful enemy to the mussel. The whelk, being furnished with a proboscis capable of boring, was observed to perforate a small hole in the shell, and thus to suck out the finer parts of the body of the mussel; the valves, of course, opened, and the remainder of the mollusk was washed away by the sea.

The perforated hole was generally—such is the instinct of these little creatures!—in the thinnest part of the shell; it was perfectly circular, but widened towards the outer side, and so perfectly smooth and regular, as to have all the appearance of the most beautiful work of an expert artist. No difficulty existed as to the course that should now be taken. It became a matter extremely desirable to preserve the mussels, and, as it seemed practicable to destroy the whelks, this work was immediately undertaken. But serious disappointment arose, and, after many barrels of them had been picked up and destroyed, their extirpation was regarded as absolutely hopeless. The mussels were thus abandoned to their foes, and so successful were their ravages, that, in the course of the third year's operations, not a single mussel of a large size was to be found upon the Bell-rock; and even the small kind which bred there were chiefly confined to the extreme points of the rock, where, it would seem, their enemy cannot so easily follow them.

The pinna, like the mussel, attaches itself to rocks by a byssus, or cable, but one that is very remarkable. It consists of threads, which exude in a glutinous state from a particular organ at the base of the foot. They are not spun out by being drawn from the secreting apparatus, but are modelled, so to speak, by the foot itself. The structure of the organ, and the process to which it is adapted, are alike extraordinary. From the root of the foot to its extremity there runs a long groove, the sides of which are so constructed as to fold over, and thus form a minute canal; and along this canal, as a mould, the glutinous matter runs, soon acquires consistence, and appears as a thread. On the thread becoming sufficiently strong, the animal protrudes its foot, and with its extremity attaches the end of the thread to the substance on which it is to be fixed; and then, expanding its foot, opens the canal so as to free the thread from its inclosure. The foot is then withdrawn, new matter is poured along the grove, and thus the operation is repeated till the cable is complete.

THE CHEVALIER CLAUSSEN'S FLAX-WORKS AT STEPNEY.

The purplish-blue flower of the flax-plant sometimes catches the eye as we pass by the corn-fields in which it most generally grows. The blossoms spring from a stem about eighteen inches high, from which also a few leaves issue; but they are alike small in proportion to the flower, whose petals are exceedingly frail.

Incalculable is the benefit which this plant has rendered to man. Its strong fibres yield thread or yarn for every kind of manufacture, from cambric, however delicate—so that its finest kind has been called "a web of woven wind"—to the lawn of bishop's sleeves, the shirting with which we are so well acquainted, and all the varieties of bed and table linen. When its seeds are expressed, they yield the linseed oil, so extensively used in the arts, particularly for painting; and which is also frequently employed in surgical cases, from its emollient nature. The seeds that remain, after obtaining the oil, are moulded into cakes, which are used to a very large extent for fattening cattle; and the manure produced from bullocks fed upon it is of great value for agricultural purposes.

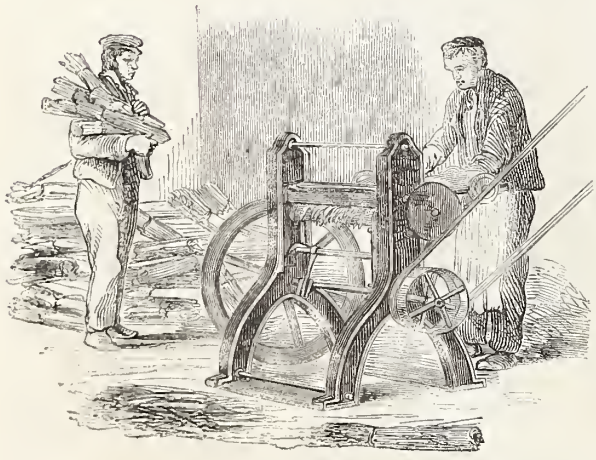
Linen constitutes, in modern times, a staple manufacture in almost all European countries. At Cambray, a city of France, the beautiful kind called cambric was first manufactured; and for many years England spent in its purchase not less than £200,000 per annum. From this vegetable, too, the lace of Brussels, Valenciennes, Lisle, and Mechlin, is obtained. From Russia we import annually half a million of quarters of flax-seed, the value of which is nearly £2,000,000 sterling. Upwards of 70,000 tons of oil-cake are annually imported, the value of which exceed £500,000; while the total value of the flax-fibre imported for manufacturing into linen, sail-cloths, tarpaulings, rick-covers, sacking, and various other materials, exceeds £5,000,000 annually.

It might, therefore, be supposed that our climate is unfavourable to the growth of flax; but so far from this being the fact, many large tracts of land in the United Kingdom are pre-eminently adapted to it, and in ordinary seasons it will come to perfection in most soils of Great Britain. Hindrances have hitherto existed to its culture; and it is, therefore, a truly gratifying task to show how completely they are removed by means, easily accessible, the products of intelligence and skill.

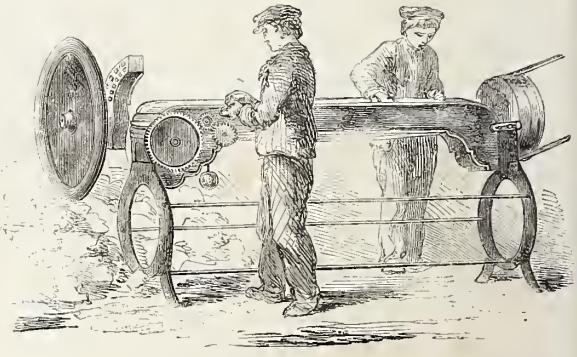
One obstacle has arisen, for example, from the idea that flax is an exhaustive crop, and that it consequently injures the soil. But an examination of the stem shows that those portions of it which are required for the purpose of manufacture, are derived almost exclusively from the atmosphere. Indeed, to so small an extent do the inorganic properties of the soil enter into the fibre, that it has been found, upon analysis, that 100 pounds do not contain, upon an average, more than two pounds of mineral matter. This chemical test is fully sustained by practical experience. Sir R. O'Donnell, one of the largest cultivators of flax in Ireland, and who has grown to the extent of 700 acres in one year, states, in the *Morning Chronicle*, "As the result of many years' experience that, when grown in its regular rotation, flax is



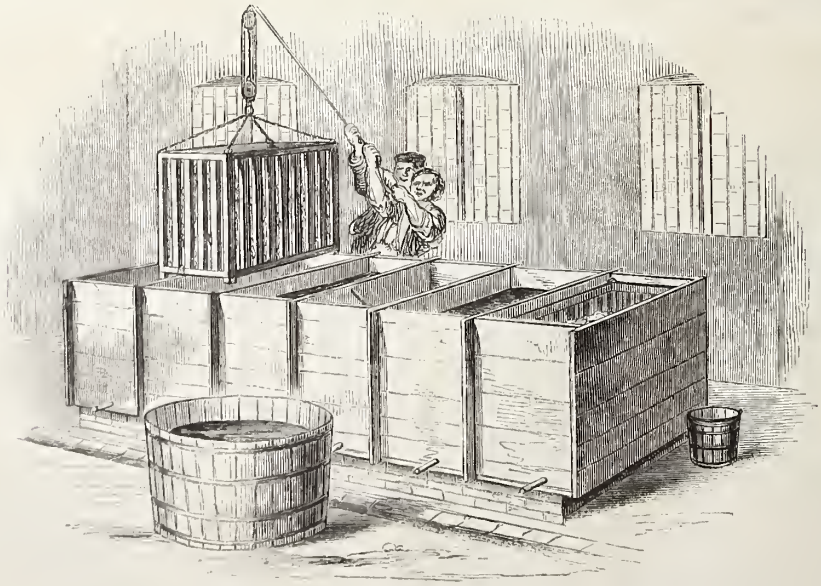
RIPPLING THE FLAX.



BREAKING FLAX STRAW.



CUTTING FLAX COTTON.



VATS FOR STEEPING THE FLAX.

far from being exhaustive; that it tends greatly to improve the soil, and the character of the other crops in the rotation. It is, above all, most valuable for laying down land after wheat or oats, as the process of pulling the flax, after loosening the earth around the roots, improves greatly the quality of the grass crops." Similar testimonies might easily be cited as given by English flax-growers.

Where, however, the plant was actually grown—the objection just alluded to not being allowed to operate—the farmer was compelled to submit to great trouble and annoyance, it being considered indispensable to *steep* the flax, in order to prepare it for the market. Thus various inconveniences attended the process of "dew-retting," or allowing it to remain exposed on grass lands, for a considerable number of days, to the action of the rain, dews, and atmosphere. In Courtrai, the principal flax-growing district in Belgium, the best mode, probably, is adopted—that of placing the flax in running streams. But with us it is impracticable; for, independently of certain peculiarities in the river Lys, which ours have not, the streams in this country are mostly too rapid to answer the purpose. In using pits or pools sunk in the ground, it is very difficult to secure all the conditions that the process of steeping requires. Clay, gravel, alluvial, and peaty soil, for example, will each impart some peculiar dye to the material, which more or less affects its value; while the water used must not be spring-water, nor that which has flowed over any soil containing metallic deposits, nor even that which has fallen in rain. But, were the necessary conditions all secured, there are the uncertainties and risk of either over or under-steeping the flax. As one sultry night, when the flax is in the steep, is enough to carry the fermentation beyond the safe point; so during winter the process must be discontinued altogether, in consequence of the temperature. Even the steeping the flax in hot water, which has been very urgently recommended, only partially separates the fibres. The best of these processes has, however, been demonstrated not only to be unnecessary, but highly injurious, as they impart injurious dyes to the fibre, and give it an inequality of strength, which are exceedingly difficult to be overcome in the subsequent stages of manufacture and bleaching.



HEVER CASTLE, KENT.—(*See page* 91.)

The question, therefore, arises, How shall the various processes required in the manufacture of flax be passed through? And this we now proceed to answer—availing ourselves of clear and accurate illustrations.

It is necessary here to premise, that the former practice was to gather the flax-straw when the seeds were unripe; but by the Chevalier Claussen's process, it is pulled at the proper season, when the seeds are ripened; thus securing alike the obtaining of the oil-cake and the oil.

On the flax-straw being gathered, it is rippled: the process being, sometimes, performed in the field, a winnow-cloth being spread under the machine. This is an iron comb, having smooth,

round teeth, standing about twelve inches out of the wood, and placed so close together that the seeds cannot pass through. The ripple, as it is called, is screwed down to a long stool, and two persons, seated at the ends, alternately draw their handful of flax through its iron teeth, as represented at the top of the page of engravings. Rippling effectually separates the bolls or seed-heads from the stalks.

The breaker, a machine seen just below—now, for the first time, applied to flax by M. Claussen—is a modification of an already existing apparatus. It divests the flax-straw of three-fourths of its bulk—thus overcoming a difficulty experienced in the sending to market of any large quantity; while the refuse is applicable as food for cattle, as well as for manure. The flax is also brought into a state adapted to the manufacture of sail-cloths, ropes, cordage, and other coarse fabrics.

But a more minute separation of the fibres than can be effected by mechanical means, is necessary for those of a finer description; and to the application of chemistry to this purpose, M. Claussen was led by a train of interesting circumstances. Wandering along the luxuriant banks of one of the Brazilian rivers, his attention was attracted to a white, down-like substance, adhering to the branches of trees, overhanging and touching the stream. On obtaining a quantity of it, he was so pleased with its character, that, thinking he had discovered some vegetable product hitherto unknown, he determined to trace it, if possible, to its source, and to ascertain the plant which produced it. Pursuing his task with great ardour, he eventually found that the substance had been washed from a bed of flax-straw, the produce of some of his own land, and which, long before, he had caused to be thrown, as useless, near the banks of the river. As the swollen waters had occasional access to this heap, fermentation and the decomposition of a portion of the plant had taken place; and in time the influence of natural chemistry had so saturated the filaments of the flax-fibre as to give the mass a cotton-like appearance; and some of it having been washed by the river, had been arrested by the overhanging branches. On the facts thus brought before him, M. Claussen proceeded carefully to reason, and the processes now to be described are, therefore, the result, not of mere accident, but of inductive research.

The flax, brought from the "breaker," is boiled for four hours in *hot* caustic soda, or steeped in a *cold* solution of it for twenty-four hours. It is afterwards washed in water containing one per cent. of sulphuric acid, and then in pure water, when it is dried, and subsequently treated by scutching, heckling, &c., according to the universal practice in the linen manufactures. Here, then, we have an immense improvement, by the long and difficult process of fermentation, which occupied six weeks, being entirely avoided. Yet the process is most effective and profitable, as *twenty* per cent. of long flax may be obtained instead of *seventeen*, while the substance is far more silky and soft. It is a popular error that Claussen's process is merely to turn flax into cotton, which people say is like "turning gold into lead;" whereas he obtains by it a much larger proportion of the long and valuable flax, and renders the refuse—ordinarily considered comparatively worthless—by a process now to be explained, capable of being worked into cotton, wool, or silk fabrics.

According to the mode long adopted in the linen manufacture, an immense quantity of tow is made, which can only be used for twine and similar coarse purposes. But the chemical process employed by M. Claussen effects a change which is highly important. A series of vats will be observed in the engraving. The first vat holds a solution of carbonate of soda; and in this the fibres, previously boiled and washed, are saturated for a quarter of an hour. It is then removed to the next vat, in which there is five per cent. of sulphuric-acid, the effervescence causing the carbonic-acid gas to separate and divide the fibres, thus rendering them more flocculent, and completely altering their specific gravity, as they rise now to the top of the vat, while before they sank to the bottom. The next process is to place them in another vat of soda, to neutralize any remaining acid; and this being effected, they are transferred to the bleaching-water of the fourth vat, composed of a solution of chloride of lime and sulphate of magnesia, thus forming a hyper-chlorite of magnesia. In this preparation they remain for two hours, during which they are perfectly bleached, requiring only to be transferred to a bath of diluted sulphuric-acid, and then to pure water. Our illustration shows the arrangement of the six vats, with the cradles in which the fibres are placed. One is being hoisted out, to be removed to the next vat; the one at the end will be observed within the vat. The fibres, on being withdrawn from the vats, are dried by atmospheric or steam-heat, or hot air. They are then taken to a machine similar to that used in chaff-cutting—of which an illustration will also be noticed—where they are cut into lengths adapted for spinning or cotton machinery.

To specify all the advantages secured by these processes would far exceed our limits. It must, therefore, suffice to observe that the following are a few out of many:—Any cloth made from flax cotton-yarn may be readily printed, dyed, and bleached by the ordinary cotton processes. The flax fibre, from its milling properties, is capable of being made into common felt hats with or without an admixture of wool. Cloth in which flax is mixed with wool is reduced in price from twenty-five to thirty per cent. Flax may be spun with silk on the existing silk machinery; and any useless flax can be converted into a first-rate article for the paper-maker.

The advantages thus presented, are opened to our view at a critical period. Our supplies of cotton from America appear to have reached their maximum, and consequently an efficient substitute is required to provide the means of employment for our continually-increasing population; while our importations of flax from Russia have suffered a decrease of about twenty per cent.

And why, it may be asked, should we thus continue dependent on continental Europe for the flax which the United Kingdom is perfectly capable of producing? Why should not the sums we spend annually, for oil-cake and flax-seed, go into the pockets of the employers and the employed of our agricultural districts? Especially when previously-existing difficulties are entirely removed—when there is a serious diminution of our imports—when our linen manufacture calls aloud for enlarged supplies. Its progress, in consequence of the great improvements which have been made in machinery during the last twenty years, has been almost unparalleled. In that time the exports of linen have increased from 50,000,000 to 105,000,000 of yards, and its declared value from £1,700,000 to upwards of £3,000,000. No attempt whatever has been made by our agriculturists to meet this enormous and rapid increase in the demand for the raw material; and, as a consequence, the foreign producer has been reaping a golden harvest. The imports of foreign flax have increased from 936,000 cwts., in 1831, to 1,800,300 cwts., in 1842; the value of the increased imports being not less than two millions and a half, nearly the whole of which is paid for in money sent out of the country.

It was, therefore, admirably said by Sir James Graham, in parliament, in reply to the honourable member for Carlisle, who had alluded to the condition of its hand-loom weavers:—

"But this is a question of the price of cotton, and, strange as it may be, it opens out a ray of hope even to the landed interest. Whence does this ray come? Why, it comes from the quarter whence they least expected it. It is from the mills of Messrs. Bright and Co. It is from Rochdale that this light opens on the landed interest. Hopes are entertained—confident hopes—that, by a new management of flax-stalk, it may be used in large proportions, with great advantage and diminution of cost, in mixture with cotton-wool, sheep's-wool, and even with silk-wool. And, sir, for my part, I cannot conceive of any dispensation of Providence more merciful, than that science and skill should succeed in overcoming this difficulty; whereby we should be rendered, in a great degree, independent of foreign supply, while a great stimulus would be given to our manufactures; and if, happily, this encouragement to the cultivation of flax here should succeed, I am very confident we shall hear no more of the distress of these hand-loom weavers, that the cultivation of land will be largely improved by the introduction of capital in growing this new plant, and that this plant will be of great service to the agriculturist, from its being peculiarly adapted to increase the fertility of the soil." The hopes to which Sir James alluded, as entertained, have since been realised; and it only remains for us to express the ardent desire that, ere long, by the series of means so happily discovered, agricultural and manufacturing prosperity may become identified.

HEVER CASTLE, KENT.

Hever Castle, about two miles from Penshurst, Kent, has connected with it historic associations of more than common sadness, and in a more than common manner illustrates the sudden changes which compose what we call life.

It was in the reign of Edward III. that it was built, by William de Hever. It consists of a castle, to which a quadrangular house is attached, the whole surrounded by a moat, beyond which several outbuildings, now used as barns, were arranged, to meet the wants of extra visitors, and for other purposes. The elevation, or front of the castle, is composed of a central keep, pierced by a gate crowned by strongly-projecting machicolations, and flanked by two square towers. The gate is of vast strength, and seems to have been the point of all others on which the architect bestowed the utmost resources of defensive skill. First, we come to a deep-bowed door-way, in part defended by a strong portcullis and two thick oaken doors, barred, bolted, and studded with iron knobs. Immediately behind these are two guard-rooms. A broad avenue of solid masonry succeeds, and leads straightforward to a second portcullis, and this again to a third, occupying, altogether, the whole depth of the castle. These gates lead the visitor into a spacious court-yard, formed on three sides of the house, which is built in the very early Tudor style; and on the fourth, by the castle. The court is neatly paved with red bricks, fancifully disposed. The front of the house was formerly richly embossed and painted with quaint colours. The great dining-room, now used as a kitchen, is a most interesting place, and contains a great part of the original "Bullen" furniture; but the room the visitor seeks with the greatest curiosity, is that known as Anne Boleyn's bedroom. This is really a good apartment, beautifully panelled, and contains the original family chairs, tables, muniment-box, and Anne's bed, a very heavy affair. A door in one of the corners opens into a strong dark cell, in which, popular tradition says, Henry attempted to starve Anne to death. To this apartment several anterooms succeed, and the suite terminates in a grand gallery, occupying the whole length of the building, in which the judicial and social gatherings of the ancient family were held. It contains three recesses. In one of them, it is said, Henry, on one of his visits, received the congratulations of his gentry. In the church —in the tower—sleeps, till the resurrection morn, Sir Thomas Boleyn, whose ill-fated daughter here was wooed and won by a royal heart, but wooed and won merely to be thrown away, as a child throws away a flower when it has lost its sweetness and perfume. Let us briefly chronicle this dark chapter in our annals:—

After Henry VIII. had been married some time, the royal will became desirous of change. Catherine had no longer the bloom of youth, while Henry was yet in his manhood's prime. What with religious scruples, feigned and real desires felt, Henry became uneasy. When first his marriage was consummated, there were many who held it forbidden by the laws of God. Archbishop Warham had spoken against it from the first. To effect it, a dispensation from the Pope was necessary; and Catherine of Arragon, then worthy of a monarch's love—not as Holbein drew her, when decay and sorrow had dimmed the light of her eye and the rose on her cheek—became once more a bride. Through many a year they had lived together, and Henry had become desirous of change. Most of the writers on this period of our history lay too much stress on Henry's religious scruples. We candidly acquit our English Bluebeard of them. In 1527, when a proposal for marrying the Princess Mary to Francis was entertained, the French Minister urged, in opposition to it, the illegitimacy of the Princess. Nothing better could have answered Henry's purpose. The royal conscience that had slept for twenty years now awoke, and deep was the agony of the royal heart. Henry loved Catherine. He felt, as he had published in his address, that "in nobleness of mind she far transcended her nobleness of birth." Were he free to choose amidst "all the beauties of the world," Catherine would be his choice; "her mildness, prudence, sanctity of mind, and conversation," he felt, were without parallel; "but, alas!" says the royal hypocrite, "we were given to the world for other ends than the pursuit of our own pleasure;" so that, rather "than commit impiety against heaven, and ingratitude against our country—the weal and safety of which every man should prefer before his life and fortune"—Henry could sacrifice even so noble a wife. Goldsmith tells us of a drunken soldier staggering in the streets, who was heard muttering his determination to live and die for "our holy religion." The religion for which Henry was willing to make such a sacrifice was of a similar character. Religion has often been wronged by men, but never more so than when under her name a woman, whose fair fame calumny had never dared to stain—a stranger in a strange land, already weakened by the approach of age, bereft of hope—was basely trampled under foot by the man who had made her his wife. Poets tell us,

> "In all the drama, whether grave or not,
> Love rules the scene, and woman forms the plot."

This truth was illustrated on a somewhat large scale at the time of which we write. Those were the days when

> "Love could teach a monarch to be wise,
> And gospel light first beamed from Boleyn's eyes."

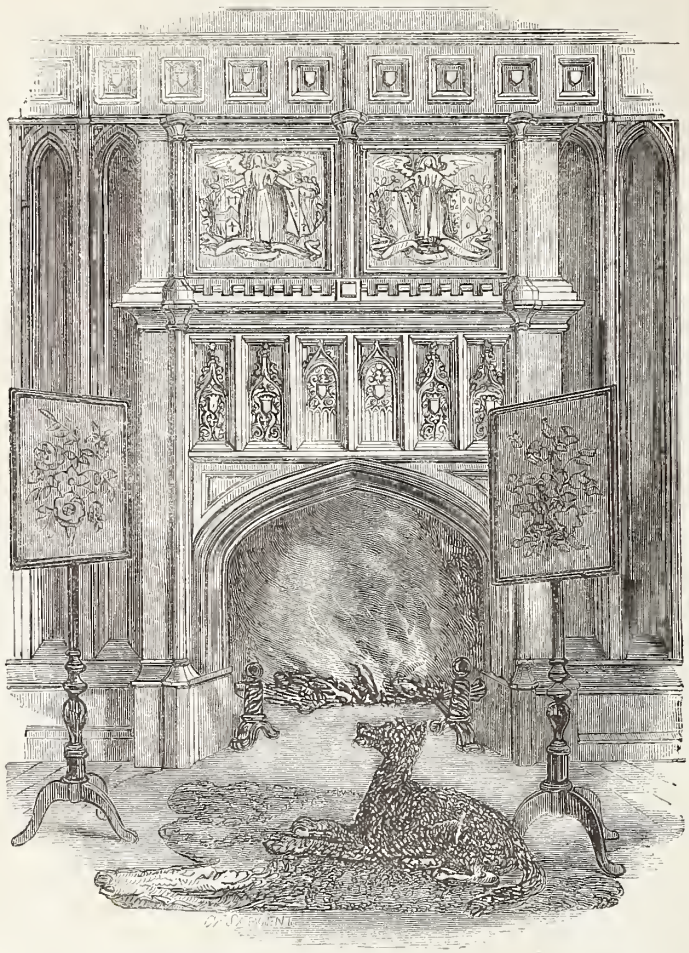
At the bottom of the whole was not religion, but a woman. There had come to Henry's court a maid, fresh and fair, who to English beauty had added the lively charm of foreign manner. When Mary, the gay and graceful sister of Henry, became the queen of Louis VII., she was accompanied by Anne Boleyn; and when her mistress became the wife of Brandon, and returned to England, Anne still continued at the court of France—a court redolent with her praise. Viscount Chateaubriand describes her as "rivalling Venus." It is most probable she was present at the Field of the Cloth of Gold, where Henry might have been smitten by her charms. Not long after, she returned to England. The conduct of most women is an enigma, and that of Anne is no exception to the general rule. Like most of her sex, she loved to reign;—like the worst, she seems to have laid herself out for admiration;—like the best, she seems to have guarded her honour with a firm, unflinching hand.

Henry, who, though he boasted no longer the comely proportions of his youth, was yet no stranger to affairs of gallantry, was not long before he made Anne aware of the passion with which she had inspired him. A high-minded woman would have repulsed him at once from her presence; but he was not the only married man who had dared to talk to her of love. Wyatt had done the same. Had Anne been easily led astray, she might have followed the example she had seen set by the Viscount Chateaubriand in the French, and by Lady Salisbury in the English Courts, and won the splendid wages by which kings tempt to sin. Catherine was living. Not a whisper had been breathed of divorce. At the best Anne could but hope to be the first in a long line of coroneted infamy. Natural historians tell us nature has endowed every living thing with some more or less potent weapon of defence. In the autumn may be seen on the trunks of trees a moth, exactly resembling a withered leaf. Often the deception is successful, and the moth escapes. For strength and power cunning is often a tolerable match. To what Cavendish not incorrectly terms Henry's "pernicious and inordinate carnal love" Anne opposed, and not in vain, the wiles of woman's art. Instead of becoming ranked with the Castlemaines and Portsmouths of the Restoration, she was enrolled in the long illustrious line of English queens. She took her mistress's place on the English throne, and in the heart of the imperious king. Henry's love was to be gratified, and Anne's honour was to be preserved. Thenceforth the path of procedure was clearly marked. The old love was to be sacrificed, a new one was to be taken in her place. The wife of twenty years was abandoned as a childish toy. By fair means or foul, Anne Boleyn was to be invested with the name and dignities of an English queen.

The thing was done, but at a tremendous price. To attain the end, it was necessary that Henry should shatter more than one tie, and break more than one heart. Catherine fell not alone. Her fall wrought that of the Cardinal as well, and his downfall was his death. Anne certainly had an aversion to Wolsey. Women by instinct know their foes, and Anne felt that sooner or later their interests would clash. Hence it was that Wolsey was banished the royal presence, and that Anne prevailed upon Henry never more to see the man who had served him faithfully—who

had pandered to his pleasures—who had promoted his interests for nearly twenty years. Wolsey felt this blow to his heart's core. All that breaks man's spirit—service unrequited, disgrace undeserved, confidence rejected, pride insulted, fealty betrayed—fell to his lot, and his heart burst beneath the stroke. As the sun was setting, and the leaves were falling, and winter was drawing nigh, a weary cavalcade stopped before Leicester Abbey. "Father," said a broken-hearted, emaciated man, as the abbot approached the mule on which his visitor was seated, "I am come to lay my bones among you." The next day the Cardinal was dead.

But it mattered not to Anne. From Hever Castle she passed in triumph over bleeding hearts to a royal palace. Three short years, and, with a bleeding heart herself, she passed from that royal palace to a prison and a bloody death. From righteous retribution neither kings nor queens are exempt, and it was Anne's sad fate to drink the cup held to her lips to the dregs. *Her* maid of honour became queen. The chamber in which Anne slept, on the eve of the morn which placed on her head a crown, was her prison The wild frenzy of her mind was construed into a confession of guilt, and she, whom Henry had striven so fiercely to win, was foully murdered, to pander to a monarch's lust. No more from the towers of Hever Castle Anne's bright eyes looked for her coming lord—no more careered gaily along its leafy park the royal cavalcade—no more echoed, under its vaulted roof, a monarch's laugh — no more, in its stately gallery, paced a monarch, telling monarch's love. The spell was gone for ever the mad fire of passion burnt no more. A fresh fancy made captive of the king, and Hever Castle became what it now is—a ruin and a wreck. We need not point the moral—our readers can do that for themselves. *Sic transit gloria mundi!*



BOUDOIR OF ANNE BOLEYN IN THE GATE TOWER OF HEVER CASTLE.

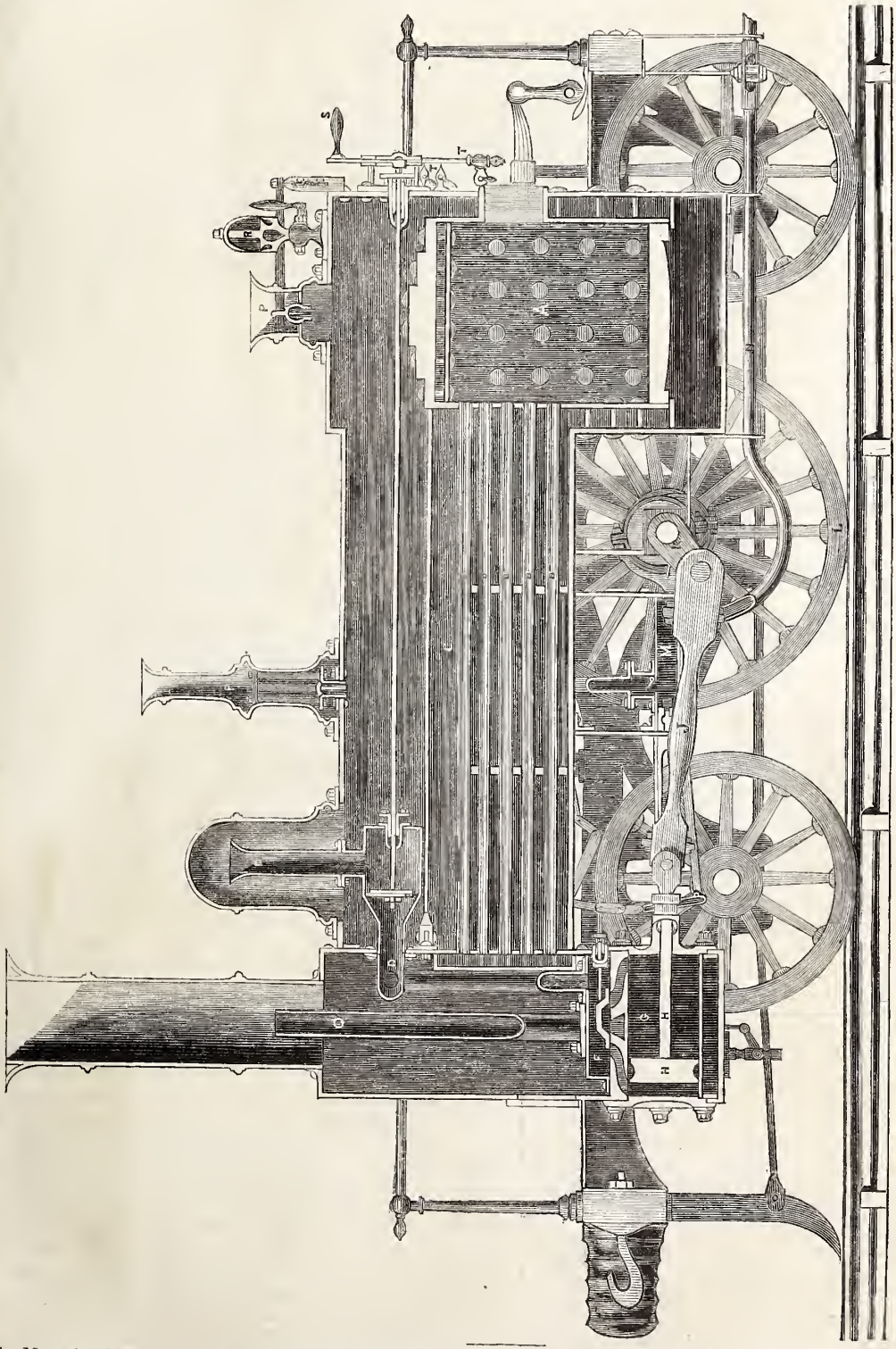


ANTI-CHAMBER IN HEVER CASTLE, KENT.

THE STEAM-ENGINE.

WITH ILLUSTRATIONS FROM THE GREAT EXHIBITION.

It is only about a century and a half since steam began to be usefully employed as a moving power. Its expansive force was well enough known before the Christian era; and it is evident from history, as well as from the nature of the thing itself, that of steam. Those who loved "the flesh-pots of Egypt" must have often witnessed such a phenomenon; and we can scarcely conceive that even Adam had no occasion to observe its occurrence, in cooking his post-paradisaical viands.



SECTIONAL MODEL OF A LOCOMOTIVE-ENGINE.

A The furnace.
B B B B Tubes conveying the heated air through the boiler.
C The boiler.
D D The steam-pipe.
E The steam-cock.
F The slide.
G The cylinder.
H H The piston and piston-rod.
I The connecting-rod.
K The crank.
L The driving-wheel.
M The force-pump, for supplying water to the boiler.
O The exhaust steam-pipe.
N The pipe for supplying the water from the tender to the force-pump.
P P Safety-valves.
Q Steam-whistle.
R Steam-cock.
S Regulator, for admitting or shutting off the steam from the boiler.

the Marquis of Worcester, to whom the invention of the steam-engine has been erroneously ascribed, was not the first man in the world who observed the lid of a kettle thrown off by the force

Hero, of Alexandria, who flourished about 120 B.C., appears to have been the earliest among the Greeks who applied the force of steam to put *aeolipiles* in motion; he describes a machine which

was used to aid superstition, which, on account of its similarity in some respects to more modern inventions, we briefly notice. This apparatus, which may be denominated the *Steam-oracle*, consisted of an altar with its fire lighted, and two figures of priests assisting in the sacrifices, with the figure of a dragon (an appropriate symbol!) pretending to sibyllate, or foretel, future events. On a hollow base was placed the altar, having a tube descending from it below the middle of the base, and there separating into three branches; one of these passed upwards in the interior of the dragon to its mouth; the other two passed upwards respectively in the interior of the other figures to the close covers of two vessels within them, containing wine, and in which they were fitted so as to be air-tight. In these wine vessels were placed two syphons similarly fitted, having their shorter ends in the wine, and their longer ends in the hands of the figures which officiate at the sacrifices. A few drops of water being introduced into the tubes, the heat of the fire caused their vapour or steam to ascend in two of its branches to the wine-vessels, where, pressing on the wine, it was made to pass through the syphons and flow from the hands of the priestly figures, who thus appeared to sacrifice as long as the fire burned on the altar; the same heat caused the steam likewise to ascend in the third branch to the mouth of the dragon, and produce sounds which were ascribed to supernatural interference, and deemed oracular by the spectators. In this apparatus, we perceive the germ of the principle of raising of water by the pressure of steam, employed by Captain Savery in 1698; and an anticipation of the method of producing sound by the steam-whistle used in locomotives on railways. *Seneca*, in the second century, attributed earthquakes to the violent operation of steam under the action of subterranean heat. *Anthemius of Tralles*, in the sixth century, according to the testimony of Agathias, a Byzantine historian, employed steam to shake the roof of a neighbour's house, whom he wished to terrify. Leonardo da Vinci, the famous Italian painter, in A.D. 1500 described the *architonnere*, or steam-gun, an invention which he ascribed to Archimedes.

Denis Papin, a French physician, in 1690, was the first who proposed the construction of a steam apparatus furnished with a cylinder and piston, in which the moving power was the atmosphere, after the steam was condensed in the cylinder by the application of cold. Captain Savery, in 1698, invented and patented an engine for the raising of water by the alternate force and condensation of steam in a vessel, but without a piston.

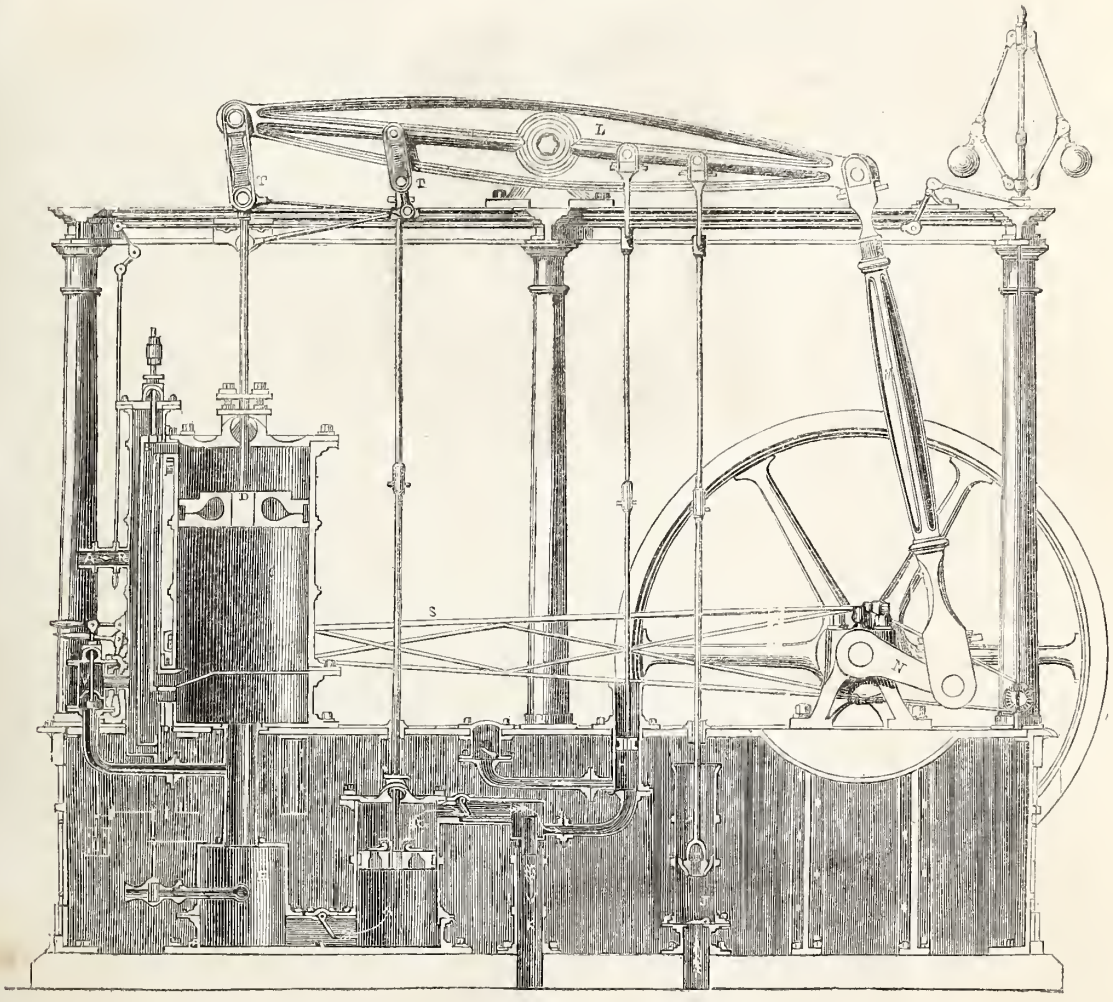
Thomas Newcomen was the first who practically applied the cylinder and piston, suggested by Papin, to an engine for the draining of mines, for which he obtained a patent in 1705. This engine, which was afterwards improved by Henry Beighton and others, is called the atmospheric engine, and is used in some of our mines to the present day. The principal improvement of this engine, said to be the effect of accident, was the condensation of steam in the cylinder by a jet of cold water into the inside, instead of a jacket of the same outside, applied by means of an outer cylinder or case surrounding the inner one.

The safety-valve was the invention of Papin, and is essential to the steam-engine in every form. The invention of the hand-gear, or part of the machinery of the steam-engine which works the steam and injection valves, was suggested by the ingenuity of a boy named Humphrey Potter, who wanted to escape the trouble of turning the cocks of the engine.

James Watt, a Scotch mechanic, was the man who brought the steam-engine to that wonderful degree of perfection in which it now exists. In 1769, he took out a patent for certain improvements in fire-engines, as they were then called, which completely distanced all preceding inventors. His first grand improvement consisted in making the steam pass through a tube, from the cylinder, into a separate vessel, where it was condensed, without cooling the cylinder—a process which increased the power of the engine to an enormous extent. His second improvement was the employment of steam, instead of the pressure of the atmosphere, to act upon the top of the piston, after the vacuum was formed in the cylinder. The former improvement rendered Newcomen's atmospheric engine a vastly more effective and useful machine for draining mines. The latter improvement was, in fact, the invention of a new machine, which was really and truly entitled to the distinctive appellation of the steam-engine. Watt's third improvement was the conversion of the vibrating or reciprocating motion of the steam-engine into a rotative or circular motion by the application of the crank and fly-wheel. This invention was patented, in 1778, by another individual; but Mr. Watt, in his notes to the second volume of Robison's "Mechanical Philosophy," distinctly lays claim to it as his own. It was an invention of the greatest importance, as it at once rendered the power of the steam-engine generally applicable to manufacturing and engineering purposes. The fourth improvement introduced by Watt was the greatest of all, namely, the alternate application of the force of the steam, and the creation of a vacuum by its condensation both above and below the piston. This improvement, independently of others, which were gradually being made, at once doubled the power of the steam-engine. The second improvement produced the engine now called the "single-acting steam-engine;" the fourth improvement produced that called the "double-acting steam-engine." Watt's fifth improvement was the "expansive steam-engine," in which the steam was used economically, by permitting it to drive the piston during only a certain portion of the stroke, and then cutting it off, so as to leave the piston to be driven, during the rest of the stroke, by its acquired momentum, and the expansive force of the steam. It is this construction of the steam-engine which is best adapted for large manufacturing purposes. His sixth and last grand improvement was the invention of the "parallel motion," or that part of the mechanism of the steam-engine by which the piston-rod, pump-rod, and other parts of it, are made to move in vertical or straight lines. Mr. Watt invented a number of other beautiful contrivances, to render the steam-engine a perfect machine; such as the throttle-valve and governor, for regulating the admission of the steam into the cylinder; the slide-valves, which superseded the hand-gear; and various others, which will be best understood by reference to the engraving of the "Sectional Model of the Double-acting Condensing Steam-engine," and its subjoined description.

Amongst the illustrative apparatus exhibited in the Crystal Palace was a series of sectional models of steam-engines, by Messrs. Watkin and Hill, of Charing-cross. By means of these admirable instruments of instruction all the internal parts of the engine may be seen, each part being animated with its proper motion. The engine is supposed to be cut through by a longitudinal vertical plane; one side of the model exhibits the real form of the engine, and the other side exhibits the section showing its internal mechanism. All the pistons, valves, slides, levers, and other moving parts, move with exactly those motions which they have in the real machine; the motion which in the machine itself is produced by the action of the circulating fluids—such as water and steam—being produced in the model by mechanical contrivances. One of these models represents a marine engine, another a locomotive, and the principal one, constructed in brass, and kept in motion by means of a small working model near it, represents a stationary condensing low-pressure engine, with all its appendages, as commonly used in the arts and manufactures. If the spectator examine carefully the movement of the parts, beginning at the great piston, he will observe that, when that piston begins to descend, the slide which admits steam from the boiler to the top of the piston is open, as is also the passage which communicates between the bottom of the cylinder and the condenser, so that the steam urges the piston downwards against a vacuum. When it arrives at the bottom of the cylinder he will observe the slide, governing the admission and escape of the steam, to shift its position, the bottom of the cylinder being now put in communication with the boiler and the top with the condenser; and thus the piston will be driven upwards by the pressure of the steam under it; also against a vacuum. If he then follows with his eye the passages leading to the condenser, he will see the air-pump working, and its valves opening and closing, by which the water and air are drawn from the condenser and thrown into a hot cistern. He will, in like manner, see the action of the hot and cold water-pumps, the parallel motion, the governor, and, in a word, all the parts of the machine. An intelligent and attentive observer, having some slight previous knowledge of the mechanical properties of steam, will, by the mere inspection of this model, obtain a more perfect knowledge of the steam-engine than he could acquire by days of study in books.

Mr. Watt, in his patent of 1769, proposed the construction of steam-engines which should be worked by the force of steam only, without condensation, and in which the steam, after having performed its work, should be discharged into the atmosphere. This is, in fact, the principle of all those engines now called high-pressure or non-condensing steam-engines, which are chiefly used for the purposes of locomotion either by land or sea. All attempts, however, to construct engines of this description, proved unsuccessful, till Messrs. Trevithick and Vivian, in 1802, obtained a patent for the invention of a high-pressure steam-engine. Their engine was practically applied to railroads in 1812. Improvements on locomotive engines were gradually introduced by Stephenson and others, from 1814 till 1829, when they reached the speed of 30 miles per hour, on the Liverpool and Manchester Railway. In a period of less than six years after the latter date, under the improvements of Messrs. Sharp and Roberts, they reached the speed of 60 miles per hour. The construction of the most improved form of this species of engine will be understood by inspecting the engraving and following description of Messrs. Watkins and Hill's Sectional Model.



SECTIONAL MODEL OF A DOUBLE-ACTION CONDENSING STEAM-ENGINE.

A The steam-pipe, through which the steam passes from the boiler to the engine.

B The slide, for directing the passage of the steam either above or below the pistou, and also of the exhaust steam into the condenser in the direction of the arrows.

C The steam cylinder.

D The piston and piston-rod, the latter passing through the cylinder-cup and stuffing-box, and communicating the power it derives from the force of the steam to one end of the beam.

E The condenser for receiving and condensing the steam from the cylinder after it has performed its duty, and by this condensation creating a vacuum alternately above and below the piston.

F The injection-cock, for regulating the supply of cold water into the condenser from the cistern.

G The air-pump, for withdrawing the condensed steam and water from the condenser, which, after passing through the valves in the piston at the down stroke, is forced through the passages at the up stroke, in the direction of the arrows, until it reaches

H, The force-pump, into the cylinder of which the hot water is admitted at the up stroke, and at the down stroke it is forced, in the direction of the arrows, into the boiler, thus keeping up a constant supply of hot water. The various valves are represented all open and close at the times absolutely necessary in the real engine, but this movement can only be seen by inspecting the section model at work.

J The cold water pump, for the purpose of supplying the cistern constantly with water from the well.

K The waste-pipe, through which the excess of cold water returns again to the well.

L The beam.

M The connecting-rod.

N The crank.

O The fly-wheel.

P The governor, connected by means of the rods (p p) with the throttle-valve in the steam-pipe.

R The throttle-valve, which partially closes the steam way when the governor-balls fly from the centre.

S The eccentric-rod, so called from its working on an eccentric fixed on the fly-wheel shaft, while the smaller end is connected with the slings which work the slide (B), and thus the eccentric motion causes the slide to pass through a very small space while the piston makes one stroke.

TT The parallel motion.

V The blow-valve.

THE LADIES' DEPARTMENT.

EMBROIDERED PARDESSUS.

The fashionable Pardessus, of which we give an engraving, is for carriage dress, and made of black or rich deep purple velvet, and profusely embroidered either in black or purple, to harmonise with the material of which the pardessus is made. Those for promenade are less trimmed, and much lighter, both in colour and material, drab and carmelite-brown cashmere being the most favourite colours, but all embroidered in colours to correspond. The pardessus is lined with sarsnet of full colours, principally red, and well wadded.



EMBROIDERED PARDESSUS.

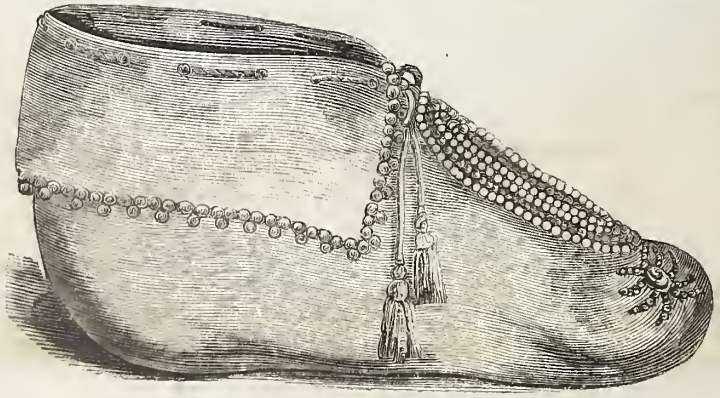
AN INFANT'S SHOE.

Materials.—A small piece of chamois leather, a little coarse crochet silk, or Russian braid, and a small quantity of beads, of various colours, the size usually called seed-beads, and a size larger. Also two short white bugles, or large beads, and a few gold ones.

We have great pleasure in presenting our friends with this elegant little novelty, which is infinitely better adapted for an infant's *first* shoe than any woollen fabric can be. Several medical men have assured us it is quite invaluable for keeping the feet warm, and being, at the same time, so soft and plastic. We may add that it is also extremely pretty, and washes and wears well.

The shoe is cut, in one piece, out of good chamois leather. It is in the form of a boot, being about three inches deep. It is sewed up the front to the instep, and the toe gathered in; the back of the heel is also sewed up. A bugle is placed at the toe, over the close of the gathers, with a few gold beads, forming a star round it. The seam up the front is covered by rows of beads of various bright, strongly-contrasting colours. They are laid on in the pattern in the following order:—The seam is covered by two rows of blue, these are surrounded by clear white, then a round of garnet, the next bright green, the outer row chalk white. The upper part of the leather, to the depth of an inch, falls over round the ancle, giving it additional warmth. It is trimmed with blue beads, *larger* than those on the front. The edges are not hemmed, as the turning over of the leather would make them clumsy; and the seams are made perfectly flat. The strings round the ancle are of braid, or of silk twisted into a cord, and finished with small tassels.

A shoe of about three inches and a half long will be found quite sufficiently large for the first size. It should be worn with a fine open-worked sock.



INFANT'S SHOE (BROUGHT FROM NORTH AMERICA).

HONITON SPRIGS IN CROCHET.

The beautiful and expensive lace for which Honiton is famous may be closely imitated in crochet, with the occasional aid of some of the point-lace stitches; we trust, therefore, that as lace is so much worn now in demi and evening toilette, a few specimens, given from time to time, will be acceptable to our fair readers.

Honiton sprigs and edgings are done in detached pieces, which are afterwards laid on Brussels net, and run on in any form that fancy may dictate. Sometimes they are connected together into a solid mass by means of twisted bars, in a manner termed *guipuring*. Being thus separate, the directions for each sprig or edging are comparatively short; we shall therefore give one or more whenever the space will permit. Each sprig is usually begun at the end of the stem, which is formed by a chain, any leaves or flowers that come on the right side of it being then made as you come to them; generally a flower forms the point of the spray, and this being made, the stem is finished by working the chain stitches in s.c., adding the leaves or flowers on the left side whenever they occur, and working down to the commencement of the chain. Leave about three inches of thread on beginning and ending; thread these with a fine needle, and run a few stitches up and down the stem, on the *wrong* side, to secure them. They may then be cut off closely, and the sprig is complete.

As these general observations refer to all imitations of Honiton lace in crochet, we shall beg our readers to refer to them, when directions for other specimens are given.

Materials.—Brooks' goat's-head cotton, No. 60; crochet-hook No. 24.

10 chain for stem; 15 for leaf. Of these, miss 1, slip on 2nd, 3 ch., miss 3, d.c. on 4th, 4 ch., miss 4, d.c. on 5th, 3 ch., miss 3, slip on the 4th. Thus 15 are used for the open hem of a long leaf. Work on the chain side to the point in s.c.; on the other side, 2 s.c., 2 d.c., 9 t.c. on 7, 2 d.c., 2 s.c. Slip at the end, 32 ch.; these are 6 for the stem, 6 for the calyx of the flower, and 20 for the centre loop of the last-named. Slip on the 13th of the 32, to close this loop, and work round it in s.c. Round this do 6 ch., miss 1, d.c. in 2nd; × 4 ch., miss 1, d.c. in 2nd, × 8 times; 6 ch, slip at the stem; s.c. all round, which completes the flower. For the calyx, slip-stitch down 6 of the 12 left, then work up the right side to the flower, 1 s.c., 5 d.c.; do 5 slip on the base of the flower, to the opposite side of the stem, and down it, on the 6 slip, 5 d.c., 1 s.c. The flower and calyx are now completed. 6 s.c. on stem, which brings the thread opposite the large leaf. 9 ch., miss 1, slip-stitch on the other 8. This forms the veining of a small leaf; work round it, 1 s.c., d.c. to the point, 3 d.c. in one at the point, d.c. down the other side, except the last, which s.c., 5 s.c. on chain; repeat this leaf; 5 s.c. on ch. This finishes the stem. Fasten off.

Unless particularly ordered otherwise, crochet sprigs are worked entirely on the right side, without turning the work. When a stem has to be crossed, pass the hook with the loop *above*, and the thread *below* it.

Honiton Edging: Laid on quilling net, for frills, infants' caps, &c.—*Materials* (as above). This edging is made all in one length. × 28 ch., slip on the 16th, so that the last 12 form a loop. × repeat for as great a length as required. This is the foundation.—2nd row, worked on this chain: s.c. round every loop, and on all the chain between.—3rd row, worked on the other side of the chain: × slip-stitch opposite loop, 2 s.c., 4 d.c., 3 ch., miss 3, 4 d.c., 2 s.c. × repeat throughout the length. Run it on the quilling net at the inner row, letting the loops lay on the net, and tacking them round Finish with a row of very good pearl edging.

QUEEN ELIZABETH KNIGHTING DRAKE.



DESIGNED BY GILBERT.

The age of Queen Elizabeth was pre-eminently that of romance. The Reformation had come, and quickened many a manly heart. Great thoughts had been set loose, the printing-press had gathered them up, and the dramatist had married them to immortal verse. It was an age of wonder, and adventure, and action. Romance was not confined to the "Globe," where an admiring multitude nightly sympathised with Desdemona's untimely fate—with the loves of Romeo and Juliet—with the speculations of Hamlet, or the bitter sorrows of King Lear—but in all broad England it had a local habitation and a name. Then, as now, the sea had an especial charm for our hardy countrymen. Raleigh captivated all hearts by his tales of countries whose inhabitants' heads were placed beneath their shoulders, and by his reports of Eldorado, with its mountains of glittering gold. To win fame, and wealth, and honour, on the ocean wave, was the object of universal ambition; and for this stout hearts bravely left their native shores, and became pioneers for their countrymen to many a then-untravelled land. And well might those hearts be stout and brave, for then Spain was a colossal power; then her flags fluttered in every breeze—her ships floated on every sea; and on no country under heaven's broad light did Spain look with so fervent a hatred as upon

"This precious gem, set in the silver sea."

Then it needed brave hearts to dare alike the perils of the treacherous Spaniard and the stormy main. However, in those days men had brave hearts; and one of the bravest of them belonged to Francis Drake—a name precious so long as the memory of Englishmen shall live.

Francis Drake, "born," as he told Camden, "of mean parentage, in Devonshire," was placed, as a youth, with the master of a bark, accustomed to coast along the shore, and sometimes to carry merchandise into Zeland and France. So pleased was the old man by his industry, that, being a bachelor, he bequeathed his vessel unto him by will and testament, a circumstance, as Dr. Johnson remarks, "that deserves to be remembered, not only as it may illustrate the private character of this brave man, but as it may hint to all those who may hereafter propose his conduct for their imitation, that virtue is the surest foundation both for reputation and fortune, and that the first step to greatness is *to be honest.*"

Young Drake appears for some time to have carried on the same course of traffic as his late master. But a "new world" had recently been discovered, and nothing was talked of among the mercantile or adventurous part of mankind but its beauty and its wealth. Fresh discoveries were frequently made; countries and nations, till then unknown, were daily described; nor did the relators suppress or diminish any circumstance that might excite the curiosity of their auditors, or overwhelm them with astonishment. Stimulated by these circumstances, the narrow seas Drake had been accustomed to navigate appeared far too limited for his capacious and aspiring mind. He, therefore, sold his bark, by the advice of a bold and adventurous seaman, Captain John Hawkins—who is styled his "kinesman"—and embarked all he had in a venture with him to the West Indies. But the result proved to be disastrous, and both appear to have narrowly escaped with their lives.

Spain was now extorting, by most unjust and tyrannical means, from the unhappy princes of Mexico and Peru, the wealth, which enabled her to domineer over a large portion of Europe; and most treacherous was her conduct towards the adventurers in recent voyages, and to other traders, to the West Indies, and the coasts of the Spanish Main. The indignation of multitudes, and especially of the mercantile and sea-faring community, was, consequently, enkindled, and a loud cry arose for summary vengeance on the atrocious oppressors of the New World. Drake, therefore, undertook a voyage to the West Indies, and gained the very spot from whence the immense quantities of gold and silver, the produce of Peru and Mexico, were formerly accumulated and shipped for Spain. The reports of his perils and adventures, faithfully given by others, and revised by his own hand, cannot here be given. In the course of this expedition he reached a famous tree, in the trunk of which were cut divers steps, to facilitate the ascent, almost to the top, while in the midst of the branches had been constructed a convenient arbour, in which twelve men might sit, and from whence might plainly be discerned both the North and South Atlantic Oceans.

The view of the great South Sea, which now fired afresh the mind of Drake, was not, however, the first discovery of that "world of waters," this having been previously made by Vasco Nunez de Balboa. Nor could the vow by which he bound himself to navigate the sea he then performed; but he returned from his voyage with a "pretty store of money," from capturing the town of Vera Cruz, and making prize of a string of mules laden with silver. With a part of the profits of this voyage he fitted out, it is said, three stout "frigates," but actually three pinnaces, moved by sails and oars, and served as a volunteer in Ireland, under his friend Walter, Earl of Essex, "where he did excellent service, both by sea and land, at the winning of divers strong forts." This enterprise was not crowned with success; but it undoubtedly led to the establishment of Drake's future reputation, by the introduction it procured for him to Sir Christopher Hatton, then Vice-Chamberlain, and by him to the Queen, who, being apprised of his adventurous expedition and success against her bitterest enemy, gave him a most flattering reception, and encouraged him to follow up his attacks on the Indian colonies of Spain.

With five small ships, the largest of one hundred, the smallest of fifteen tons, and the average of the whole only fifty-five tons, he now started on his voyage round the world, which had only been once performed, by Magelhaens, and was "accounted so terrible in those days that the very thought of attempting it was dreadful." The little squadron left Plymouth on the 15th of November, 1577, and on the 23rd of August, Drake came to the mouth of the Strait of Malgelhaens, an inland sea, thick set with islands, and enclosed with high cliffs and mountains, which in that latitude render the air extremely cold, the summits being covered with snow. "At the cape forming the entrance," says the narrator of the voyage, "our general caused his fleet, in homage to our Sovereign Lady the Queen's Majesty, to strike their top-sails upon the beach, as a token of his willing and glad mind to show his dutiful obedience to her highness, whom he acknowledged to have full interest and right in that new discovery; and withal, in remembrance of his honourable friend and favourer, Sir Christopher Hatton, he changed the name of the ship, which himself went in, from the Pelican to be called the Golden Hind." And the fact is indeed remarkable, that in sixteen days the little fleet, now reduced to three vessels, passed through this most intricate and troublesome navigation, which one of our square-rigged ships usually requires a fortnight to accomplish, notwithstanding all existing improvements in vessels, nautical instruments, and the theory of navigation.

On the 16th of September the mariners entered into the open South Sea, where a terrific tempest arose, in which one of the vessels was lost, with all on board, and another entered the Strait of Magelhaens, and nothing more of it was heard. Deprived of his ships, his companions, and a great part of his crew; driven by a succession of storms to the very southern extremity of the great continent of America, which had never been visited by any civilised human being (for he was the first to discover Cape Horn); tossed about on a sea utterly unknown, and suffering grievously in his own person, Drake's situation now seemed desperate. But, a genial breeze springing up from the south, he sailed to the north-west, visited various places, and arriving on the 7th of February, 1578, before Africa, he took some barks laden with about eight hundred weight of silver. A few days after he entered the port of Lima, and with extraordinary temerity, which was regarded only in panic or cowardice, he plundered seventeen loaded ships, without the slightest attempt being made for their rescue or defence. Chasing a richly-laden vessel, called "the Great Glory of the South Sea," he took from her spoils calculated in value at 360,000 pieces of eight, or nearly £90,000, and let her go. While on his way he boarded a brigantine, out of which he took eighty pounds of gold.

He now continued his voyage, and, keeping close to the coast of North America, refitted his vessel in the port of Aguapulca. He boldly resolved to try whether he could not reach home by proceeding to the north-east, but only to fail, as others have done since, in solving this momentous problem of navigation. He visited the natives of the west coast, and, from the white cliffs which he observed on it, he gave to all the land he had seen in this part of America the name of New Albion, in honour of his own country. "There is reason," says Burney, "to conclude, that the Port of Drake was that which is now known by the name of Port San Francisco." Proceeding to the Pellew Islands, Drake afterwards made the Philippines, and appears to have gained golden opinions from all with whom he met at Ternate, the capital of the Moluccas. "It is impossible," says Sir John Barrow, to whose "Life of Drake" we are greatly indebted, "not to admire the boldness and skill of this able navigator, steering his solitary vessel through unknown seas, without a pilot and without a chart (for the only one he had was from the coast of America to the Philippines)—to conduct his little ship in safety thus far through an intricate navigation, among rocks and islands, far more intricate even than the passage through the Strait of Magelhaens." But, on the night of the 9th of January, 1580, running under all sail set, and the wind blowing moderately fresh, the ship all at once struck on a rocky shoal, and stuck fast. In this imminent peril it was lightened, but only of that part of the cargo which was of little value; and when the ship slipped off from the ledge of the rock, and floated into deep water, Drake proceeded to Java, subsequently put to sea for the Cape of Good Hope, and on the 26th of September, 1580, arrived at Plymouth, where he was *fêted* for some days by the authorities and the neighbouring gentry.

He afterwards set sail for Deptford in the ship with which "he ploughed up a furrow round the world;" and on the 4th of April, 1581, received on board her Majesty, who conferred on the illustrious navigator the honour of knighthood. The Queen expressed herself strongly that the Golden Hind should be preserved as a striking monument of his own and his country's glory; and it remained in Deptford Dockyard, the object of great curiosity and admiration, during a long series of years.

TUNNELLING THE ALPS.

Hannibal and Napoleon have acquired immortal renown by leading great armies *across* the Alps, but what shall be said of those who propose to bore through them? The project does not appear to be by any means impracticable. Engineers gravely examine it, and report that it may be carried into execution; and after the Crystal Palace, and the Menai Bridge, and the Thames Tunnel, who will venture to disbelieve them?

To complete a direct line of railroad communication between Boulogne, Venice, and Ancona, and consequently between London and the Adriatic, only one obstacle lies in the way. The chain of Mont Cenis and Mont Genèvre, running nearly north-east and south-west, would cross such a line, and present, with the elevation of 11,000 feet, an insurmountable bar to any direct and continuous railway. The railway can, with some difficulty, be made to Modane, at the foot of the northern crest of the Graian and Cottian Alps; but here it must stop, unless a subterranean passage can be found through the mountains, and a project for doing this has been for several years under consideration by the Sardinian government. Chevalier Henry Maus has devoted much study to making the examinations and calculations, and has invented a new boring machine for the purpose of carrying out the plan. He made his report early in 1849, and a commission of engineers, army officers, and geologists, was appointed to examine into the feasibility of the project. Their report, illustrated by maps, has just been published, and an application for a part of the funds to begin the work will be made forthwith. The tunnel is expected to cost about £600,000, and may be finished in five years. It will measure 12,290 metres, or nearly seven miles in length. Its greatest height will be 19 feet, and its width 25, admitting, of course, of a double line of rail. Its northern entrance is to be at Modane, and the southern entrance at Bardonnèche, on the river Mardovine. This latter entrance, being the highest point of the intended line of rail, will be 4092 feet above the level of the sea, and yet 2400 feet below the highest or culminating point of the great road, or pass, over the Mont Cenis. It is intended to divide the connecting lines of rail leading to either entrance of the tunnel into eight inclined planes of about 5000 metres, or 2½ English miles each, worked like those at Liege by endless cables and stationary engines, but in the present case moved by water-power derived from the torrents. At one point there will be 4850 feet of mountain, capped with eternal glaciers, overhead. Ventilation must be maintained by forcing air in and out by mechanical means.

The newly-invented machine, which it is proposed to use, consists of two large hydraulic wheels, 18 feet in diameter, which move two pulleys (with an endless cable passed twice round them) placed horizontally, and of 30 feet diameter, performing 22½ revolutions per minute. There is also an endless cable connected with the excavating machinery, to move at the rate of 35 feet per second, and a counterpoise or weight to keep the cable in a proper state of tension at the opposite end of the hydraulic wheels, and to travel on a waggon between these and a great well, sunk to receive a corresponding weight at the end of a rope. The machine, once presented to the rock, projects into it simultaneously four horizontal series of sixteen scalpels, working backward and forward, by means of springs cased in, and put in operation by the same water-power. While these are at work, one vertical series on each side works simultaneously up and down, so that together they cut out four blocks on all sides, except on the rock behind, from which they are afterwards detached by hand. During the operation, a squirt-pump throws out a jet of water between each pair of scalpels, to prevent the heating of the tools, and to wash out the rubbish. After their complete separation, the blocks are pulled out by the help of the endless cable, and received in a waggon, to be drawn from the tunnel. The machines are only to cut a gallery 13 feet wide and 7 feet high, which is afterwards to be enlarged by the ordinary means to the size mentioned above. It has already been ascertained that each of the two machines, at the opposite ends of the tunnel, will excavate to the extent of 22 feet per day, and it is to be estimated that the whole excavation will be completed in four years. The rocks which it is supposed will be met with are gypsum, limestone, and quartz in veins.

Of the effects of such an undertaking there can be but one opinion. It would form a new highway for the diffusion of moral and political blessings all over the continent. The very fact that the idea originated in Sardinia is a striking instance of the good that is wrought by a free government, and presents a brilliant contrast to the gloomy rule of the Papacy, which totally prohibits the formation of railways in the States of the Church. We greatly fear, however, that the recent convulsions, the predominance of absolutism all over the continent, and the unconquerable repugnance of Austria to everything progressive, whether national or social, may prevent, or at least greatly retard, the execution of the project.

THE BROTHERS LE NAIN,

FRENCH PAINTERS OF THE SEVENTEENTH CENTURY.

Three artists, bearing the name of Le Nain, appeared in France about the middle of the seventeenth century. The leading feature in all their works is simplicity and trueness to nature, and in these respects they present a striking contrast to those of their contemporaries, who, for the most part, had followed the conventional style of Vouet and Lebrun. It is impossible to mistake the paintings of the Le Nains for those of any other artist. They are all marked by the same leading features—the same close attention to the effects of light and shade—the minute accuracy of detail—and the same scrupulously-exact imitation of nature.

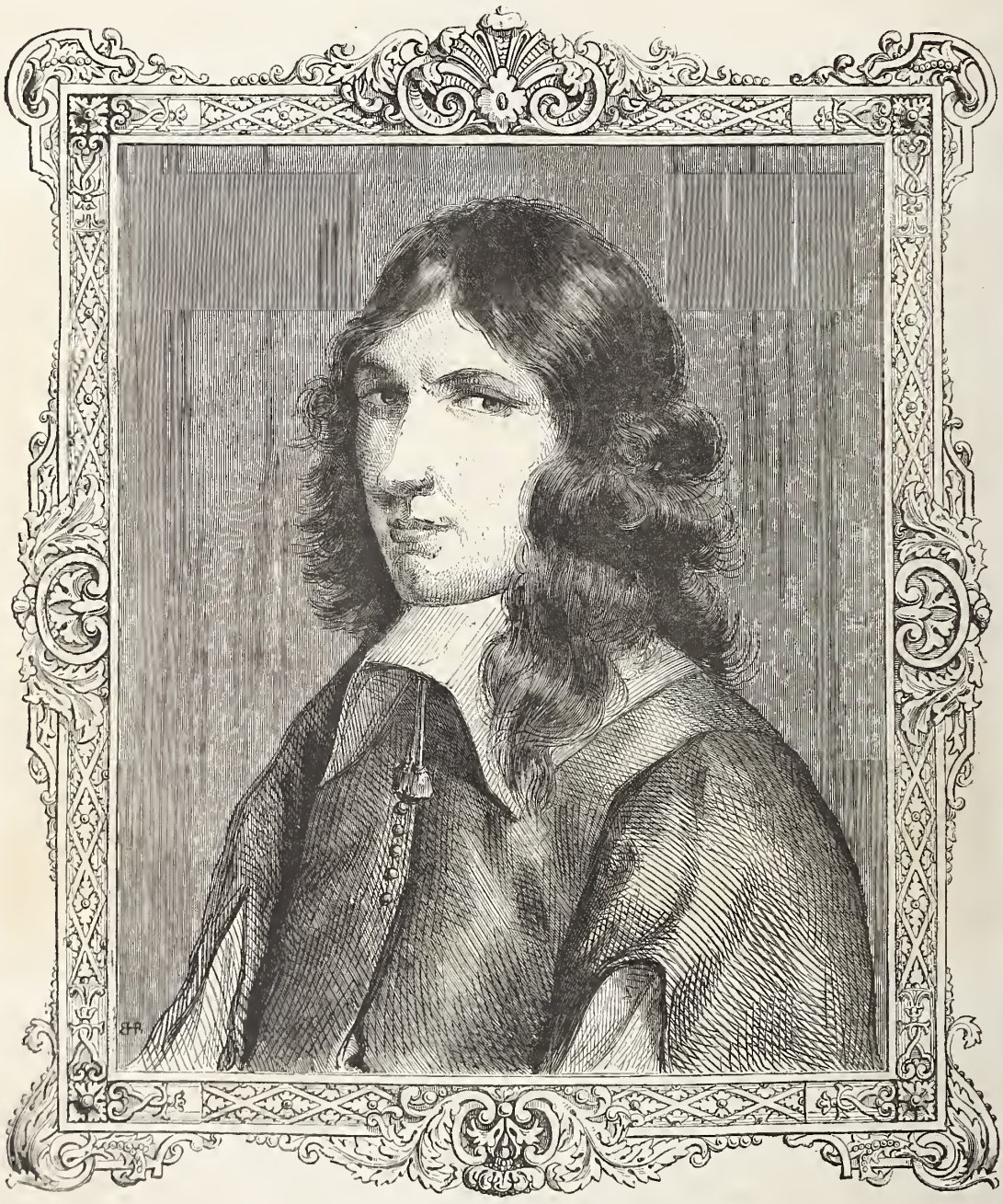
Strange to say, however, very few can say to which of the brothers any of their works still extant belongs; or, in vulgar parlance, can pronounce with certainty "which is which." So few and imperfect are the accounts which have come down to us, that nothing is known of those little differences of style which might enable us to distinguish the works of one of them from those of the others.

Antony and Louis Le Nain were born at Laon, the former in 1588, and the latter in 1593. They painted rustic scenes in low life in the French style, and so entirely similar was the results of their individual labour, that it was impossible to distinguish any difference in the parts which each had done in the same painting. They worked in common, and no picture ever issued from their studio in which both had not a hand. Their finish was exquisite, and they had great skill in the mixing of colours. Their whole lives were spent in perfect harmony of sentiment and pursuit, and in death they were not divided. Louis died on the 23rd of May, 1648, and Antoine two days afterwards, on the 25th of the same month. They proposed taking part in the establishment of the *Academie Royale*, but their decease prevented their putting their design into execution.

The Chevalier Mathieu Le Nain was born at Laon, in 1607, and died at Paris in 1677. He devoted his attention almost exclusively to portrait painting, and in that character was admitted a member of the *Academie Royale*. Whether he was in any way related to the two brothers, Louis and Antoine, is unknown, but he came from the same town, and there is every probability that he belonged to the same family. This meagre sketch is the only account which has come down to us of these artists or their works; and what renders the obscurity still greater, no engravings were taken of any of their paintings during their lifetime. It

was not until a century after their death that eminent English and French engravers—such as Beauvartet, Daullé, Elizabeth Cousinet, Lebas, Bannerman, Earlom, Mitchell, Baillie—endeavoured to render the public familiar with their works. But the engravers as well as the historians have left no mark by which the works of each of the three artists may be distinguished. The surname only, Le Nain, is attached indiscriminately to all.

At this period their works were eagerly sought after, and were to be found in all the best collections of the connoisseurs of the Peter. It is said they were taught painting at Laon by a stranger for one year, and then proceeded to Paris to complete their studies, where they lived in the same house. Antoine was the elder. He was formally acknowledged a painter on the 16th of March, 1629, in the hall of the Abbey of St. Germain, by the Sieur Plautin, an advocate, who was bailiff of the place. The two brothers were the same day elected members of the Royal Academy of Painting and Sculpture. Their letters of reception are dated March 1, 1648, and are signed by the celebrated



LE NAIN, FROM THE ORIGINAL PAINTING IN THE MUSEUM OF PUY.

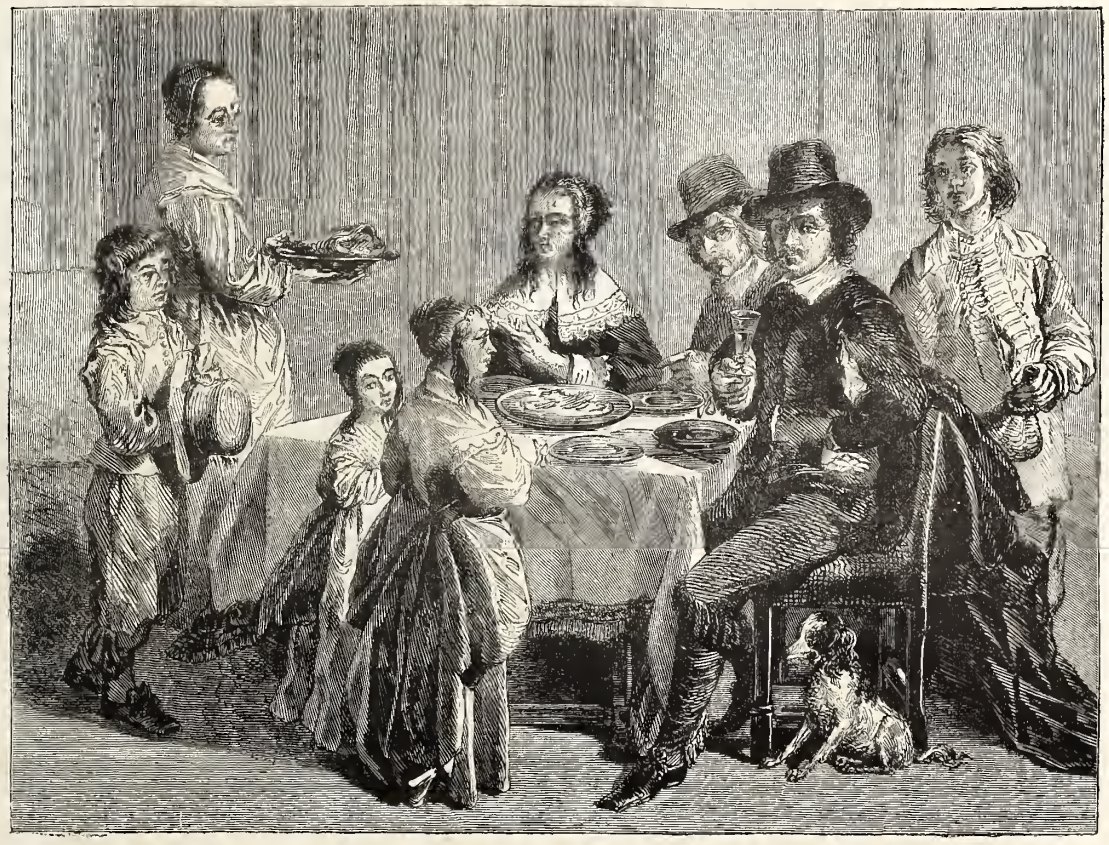
day. Of the paintings of the Prince of Conti, sold in 1777, seven were by Le Nain, one of which, the "Farrier in the Forge," was bought for 2,460 livres. This is at present in the Louvre.

In an essay recently published in France upon the Le Nains and their works, some additional light has been thrown on the subject in the shape of extracts from a MS. written by a Benedictine monk named Grenier, who occupied himself for many years in the collection of curious information relative to the province of Picardy. He says, "Louis and Matthieu Le Nain were the relatives of Gilles Le Nain, vicar of the parish of St. Lebrun. Most of the paintings in the town of Laon are attributed to one of them—the 'Last Supper' in the chapel of the Queen's Church in the great square, and the painting over the high altar of the church of St. Benedict."

The "Family Repast," of which we present an engraving, was part of the collection of the Duke de Choiseul, and was sold for 2,300 livres in 1772. A similar painting was in the possession of Poullain, the Receiver-General of the Royal Domains. It gives a better idea of the peculiarity of the style of Le Nain than the "Farrier in the Forge." It may safely be com-

pared to any of the great works of the German and Dutch school. It has all the force and truthfulness of Ostade and Craesbecke, with the grace and precision of Cattol and Abraham. The features and costume of the two burghers remind one of the great Corneille, and Hooch would not be ashamed of the valet who stands behind them. The stiff mother, in her starched collar, scolding the boy, who is crumpling his hat in his hands —the two other children — and the servant beside all—have an air of inimitable simplicity. When to all this we add the exquisitely-harmonious distribution of light and shade, we cannot feel surprised that the works of the Le Nains are so highly prized. But it is a curious circumstance that very few of them are now to be found in France. They are scattered through all parts of Europe. Some are in the possession of the Duke of Sutherland and the Marquis of Bute; others are to be found in the Grosvenor Gallery, in the Museums of Schleisshcim and Ludwighurst, in Germany; in the Hermitage Gallery in Russia, and the celebrated Gallery of Florence, in Italy.

The portrait of Le Nain has never been published. The engraving we give is from a sketch taken from an original painting in the Museum of Puy, in the department of the Haute Loire, in France. At all events, it is certain that this likeness of one of the Le Nains is due to the pencil of one of them. The whole portrait breathes of their manner. The direction of the eyes, the careless costume, speak of self-portraiture. It is a half-length, representing a man of about thirty years old, with long and thick brown locks, flowing down to his shoulders. The eyes are dark, keen, observant; they remember what they see. The purpoint is plain, and void of all foppery. The simplicity, which is a characteristic of all their paintings, was, if possible, still more rigorously observed here. Matthew had principally devoted himself, as we have already seen, to portraits, often historical; this historical portrait is, therefore, likely to be at once his work, and the likeness of no other than himself. The familiar subjects are thus probably the productions of his two brothers, in most instances.



THE "FAMILY REPAST," FROM A PAINTING BY LE NAIN.

THE GREAT WESTERN RAILWAY COMPANY'S LOCOMOTIVE FACTORY AT SWINDON.

Just for a moment before we enter this large establishment, of which the title has now been given, let us, in imagination, roll back about a quarter of a century, and place ourselves in the year 1825, in a committee-room of the House of Commons. The matter under discussion is the Liverpool and Manchester Railway Bill; and the gentleman who is now being examined is asked whether a locomotive could travel *safely* at the rate of five or six miles per hour. To this he replies, that he thinks even *double* that rate may be attained, and adds that he proposes to travel at the rate of *eight* miles per hour with a burden of twenty tons, and *four* miles an hour with forty tons. And what effect did these statements produce? They were laughed at by some, and positively disbelieved by others. And yet that gentleman was George Stephenson

The improvements which have been of late effected in locomotives are too numerous to be now detailed. "The Rocket," of five or six tons weight, which cost £550, and gained the first prize on the Liverpool and Manchester Railway, has been gradually superseded by the six or eight-wheeled engines, of £2,500 or £3,000 each, and of twenty or thirty tons, the tenders of which alone cost almost as much as the earlier locomotives. While the "Rocket" was required only to propel a load three times its own weight, a "modern" engine will convey thirty passenger carriages, averaging five tons and a half, at a speed of thirty miles an hour. We have, indeed, been told, by the secretary of the Great-Western Railway, that the express-trains, when in motion, proceed at the rate of from seventy-five to eighty-five miles an hour, and that the goods-engines are capable of conveying five-hundred tons at the speed of twenty miles an hour!

The Railway Factory at Swindon consists of two large squares,

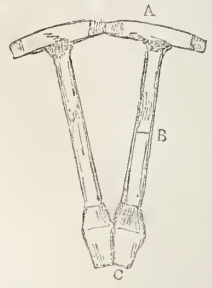
surrounded by workshops, with one or two smaller squares adjoining. In connection with this establishment there is also an engine-house—where locomotives not immediately wanted are kept, like horses at livery, except that they require no food—and a building resembling a veterinary college, where any constitutional defect is corrected, and any local injury repaired. There are, moreover, two shops for the manufacture of iron-trucks and the iron-work of carriages, with which, at present, we have nothing to do. The locomotive department, to which the present remarks will be restricted, has room for no fewer than 3,000 men to work, though this number has never yet been reached.

In describing the movements of a locomotive establishment of such magnitude and extent, we begin, as is desirable, with the simplest part—the Smithery: a long range of buildings, containing the astonishing number of 176 forges, with all the appliances required for their full efficiency. Here, all the parts of a locomotive, which are of *wrought*-iron—as axles, piston-rods, connecting-rods, and the smaller pieces, which seem almost innumerable, are produced. All the various processes of a very complete smith's-shop are constantly passed through. One branch of this department is appropriated to the spring-makers, who forge and nicely temper the parts of which a spring is composed, and then fasten them together by an iron band.

From hence we proceed to observe the forging of the largest works of a locomotive. As an ordinary fire is inadequate to heat the huge masses of iron employed in their production, there are three furnaces. One of them is used in melting the scraps of iron that come from the lathes and the fitting-shops in general; these hard substances yielding to the heat thus maintained as readily as the "kitchen stuff" of the cook does in the vat of the tallow-chandler, and becoming no less fully prepared to receive any form that may be desired. Close to the furnaces are two of Nasmyth's steam-hammers, which are invaluable in forging large masses of iron. Of these powerful, yet easily-manageable, machines, nearly four hundred have been constructed, and are in action not only in England, but in various parts of the earth. Before they were introduced, the forging of huge masses was not only a tedious, but doubtful process; but now a sufficient force is brought into operation to give them the required solidity, and the consequent security to their future use. Our illustration shows the back of one of the furnaces, with the opening through which the men put the coal; the crane by which the iron, however huge it may be, is brought to the steam-hammer; and that vast congeries of "sledge-hammers" itself, which works on unwearied from day to day, and from year to year. It is here represented as forging the half of a crank-axle. And most important, indeed, is this part of its service; for on the crank-axle the driving wheels of the locomotive are put, and to it the propelling power that is necessary is applied.

It is curious to observe how completely the steam-hammer is under the control not merely of a man, but a boy, who can cause it to descend with the weight of many tons, or with so gentle a force that a nut may be cracked, and the kernel suffer no injury. But, in forging a crank-axle, great power is required. An oblong mass of iron has a square piece cut out of it from one end; the remainder of it is then slightly rounded, and afterwards the other end is similarly treated; the result being an oblong mass of iron with a roughly-rounded piece at each end. Two masses having been shaped in this way, they are welded together, after being brought to a white heat in the furnace—the two oblong pieces being placed at right angles.

Another remarkable process is that of wheel-making. On the importance of this part of a locomotive it is unnecessary to expatiate. The breaking of a wheel under the old coach system, suggests all the ideas of a frightful accident; but how are they increased and intensified in connection with such a catastrophe on the rail! Against it, therefore, every possible precaution is taken. Very recently the spokes were arranged in the form of arches, each arch being produced from a bar of wrought iron, and then so placed as to form a complete set of spokes. These were all united by the nave, which was cast solid. But now the whole of a railway wheel consists of wrought iron, and the process of its construction will be clearly perceived in connection with the diagram. The first thing forged is a piece of iron, in shape like A B; another piece, shaped like B C, is then welded to it, and the two united form a spoke, with part of the circumference of the wheel. This process is repeated till the requisite number of spokes are made, which are successively welded together. In the large eight-feet driving-wheels there are 24 spokes.



Our illustration in the first centre page shows the next operation. The wheel is exhibited as being heated for the welding of the outer parts. In the furnace to the left, the piece of iron is being prepared for insertion in the gap that requires to be filled. No ordinary heat will suffice for such processes. There is therefore a scene of wild magnificence when one of the smiths stirs up the fire, which throws up sparks to the height of many feet, and casts a bright but lurid glare over the rough countenances and herculean forms of the surrounding artisans. On the wheel being completely welded, two pieces of iron are placed on the upper and lower part of the nave, to give it solidity and strength.

The tires of the larger wheels are made in two pieces, which are then welded together. For the smaller ones the following course is adopted:—A bar of iron rolled into such a shape that its section forms a right angle, is raised in the furnace to a red heat; one end of it is then secured by a staple to a circular mandril of the size required, and the bar is gradually bent round it, staple after staple being added to keep it in its place, until the extremities meet or nearly so, when, wedges being driven between them at a welding heat, the two portions are united, and the tire of a wheel is completed. A wheel consists of a hundred and one pieces.

The illustration to the right of the one last named shows the furnace in which the tires are heated, and, in the foreground, the process of expanding any that are made too small. They are placed on an iron floor, on which there is a kind of skeleton wheel, the circumference of which the men extend by means of a handle shown in the engraving. If, on the contrary, any tires are made too large, they are reduced by hammering, to fit this wheel.

The boiler-house must now be visited. The boilers are made of sheet-iron, duly prepared for this purpose. When brought to their proper size and shape, the plates have to be drilled or punched, so that holes may be made for the rivets which are to bind the various parts of the boiler together. The process for doing this may be observed in our illustration. It exhibits a furnace, in which a boy heats small iron rivets, which are simply round pieces of iron, each having a head at *one* end. Taking one of these heated rivets in a pair of pincers, he runs to the boiler which the men are engaged in constructing, and thrusts it into its destined hole, placing its head *inside* the boiler; against this a man standing within presses firmly with a hammer, while without two lusty workmen ply their hammers so effectually, that the end of the rivet is rapidly transformed into another head, so that between the *two* heads the boiler-plates brought into previous contact, are firmly held together. In this way rivet is added after rivet, until all that are necessary to make the adhesion of two plates complete, either throughout their length, or width, or both, is skilfully effected.

Sir F. Head naturally and forcibly says, when referring to similar circumstances: "As for asking questions of, or receiving explanations from, the guide, who with motionless lips conducts the stranger through this chamber, such an effort would be utterly hopeless, for the deafening noise proceeding from the rivetting of the bolts and plates of so many boilers is distracting beyond description. We almost fancied that the workmen must be aware of this effect upon a stranger, and that on seeing us enter they therefore welcomed our visit by a charivari sufficient to awaken the dead." And then, describing men similarly engaged to those who have just been noticed, he adds: "The noise which reverberated within this boiler, in addition to that which was resounding without, formed altogether a dose which it was astonishing the tympanum of the human ear can receive uninjured; at all events, we could not help thinking that, if there should happen to exist on earth any man so ungallant as to complain of the

occasional admonition of a female tongue, if he will only go by rail to Crewe"—Swindon will do as well—"and sit in that boiler for half an hour, he will most surely never complain again of the chirping of that 'cricket on his hearth'—the whispering curtain lectures of his *dulce domum*."

The chief object observable in the engraving employed to illustrate this part of the subject is a boiler, nearly completed, and soon to leave the workship. At the right may be perceived the *fire*-box, and at the opposite extremity the *smoke*-box, to which a chimney is appended; the round spaces, which are hereafter to be occupied by the cylinders, may be distinctly observed.

Leaving the boiler-house, we enter the foundry, the region of products in *cast*-iron—those already described being in *wrought*-iron. Here the cylinders and surrounding parts of the fabric of a locomotive are formed. Here, too, the ornamental portions, the cocks, and whistles, are cast in brass. For the foundry, however, much narrower limits suffice than for the other departments of the establishment through which we have passed. Immediately adjoining the foundry is a shop where the woodwork of the buffers of a locomotive is made; here also are the pattern-makers, the persons who make models in wood—and that with great dexterity and nicety—of whatever is intended to be cast in moist or dry sand, and that either in iron or brass. This mode is adopted in all the finer kinds of work, and it is now mentioned because, in the production of larger articles, and where a rough surface is of no consequence, the melted metal is poured into moulds of loam, when patterns are only partially, or not at all, used.

Near to the foundry is a yard, where are stowed away old cylinders, over which has gathered a thick coating of rust—the accumulated garments, in fact, of many successive seasons; and where are heaped together, it might be supposed, all the possible varieties of the orts and ends of old iron. Many pieces are ready to be immediately transferred to the furnace, which, in due time, will pour them forth in a liquid flood; but others are required to be first reduced in size, and for this purpose they are submitted to the *gentle* influence of a mass of iron, weighing about two tons, which, being raised by a windlass to a considerable height, is suddenly let fall, and crushes them in pieces.

The fitting-shops now demand a visit. To supply the power necessary to put in motion the numerous machines in the factory, there are two powerful engines: one by Stothardt, with 21-inch cylinders; and, at the other end of the buildings, is an engine with 30-inch cylinders, by Harvey and Co. In the lower turning-shop, the first we enter, the axles, crank-axles, and other large parts of locomotives, are finished.

The illustration at the top of the second page of engravings represents the slotting-machine, one of the almost invaluable machines of Messrs. Whitworth, of Manchester: the one now exhibited is, we believe, the largest they ever made. Our readers will remember the state in which a crank-axle was left by the steam-hammer; and this machine is employed to cut, from the solid metal, a hole or aperture, for the admission of the connecting-rod. The process by which this is done will be easily understood. The tool which is represented in the engraving, just above the axle, is moved regularly up and down by appropriate machinery, while the table on which the crank-axle rests is simultaneously advanced, so that the tool may constantly find a fresh portion of the metal which it has to remove; and all the manual attention required is to keep up a supply of soft-soap and water, to prevent the tool from becoming too hot. In this way an aperture in a crank-axle is completed in about twelve hours; but the time and means employed are amply compensated by the additional strength that is thus secured over the former practice, in which the crank-axle was constructed with the hole.

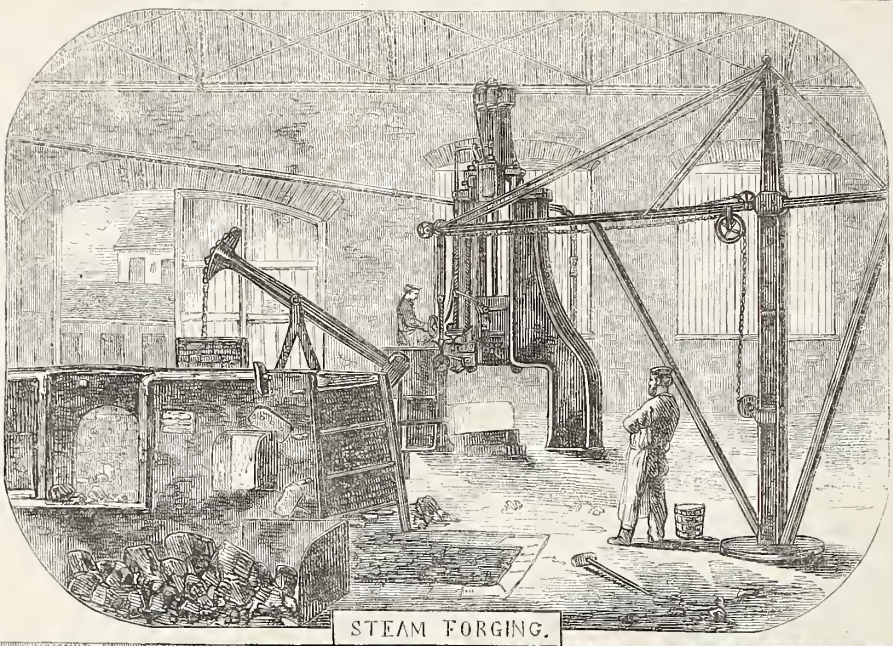
After the slotting-machine has thus acted on the crank-axle, it is removed to one of the large lathes, in which state it is shown at the bottom of the page. Here it revolves, coming in contact with a tool, which is gradually moved forwards and backwards against the part to be turned, by means of an ingenious machine called a "slide-rest;"—a great improvement on the old practice, which required the tool to be firmly grasped by the turner, while the upper part of its long handle rested on his right shoulder. A can of water, elevated just above, keeps up a succession of drops on the part being turned, the heat of which speedily converts the water into steam. By this process of turning, the crank-axle appears in contrast at this part to its former rude condition; it becomes not merely smooth, but bright too; the slide-rest acting with the greatest nicety. The tool often produces an iron-shaving, as bright as silver, extending not merely to many inches, but to several feet in length.

At one end of the same shop is the machine for boring cylinders, of which an illustration will also be observed. This process requires even less attention than the slotting-machine, as the tool pursues its slow, but steady and unerring course *inside* the cylinder, and needs only the application of oil about once in an hour. Each cylinder has two borings: the first at the rate of about two inches an hour, and the second at the rate of about an inch and a half. It need scarcely be remarked that the iron bar, seen in the drawing as passing through the cylinder, has the cutters sliding along it to bore the cylinder, but which, of course, are not visible from without.

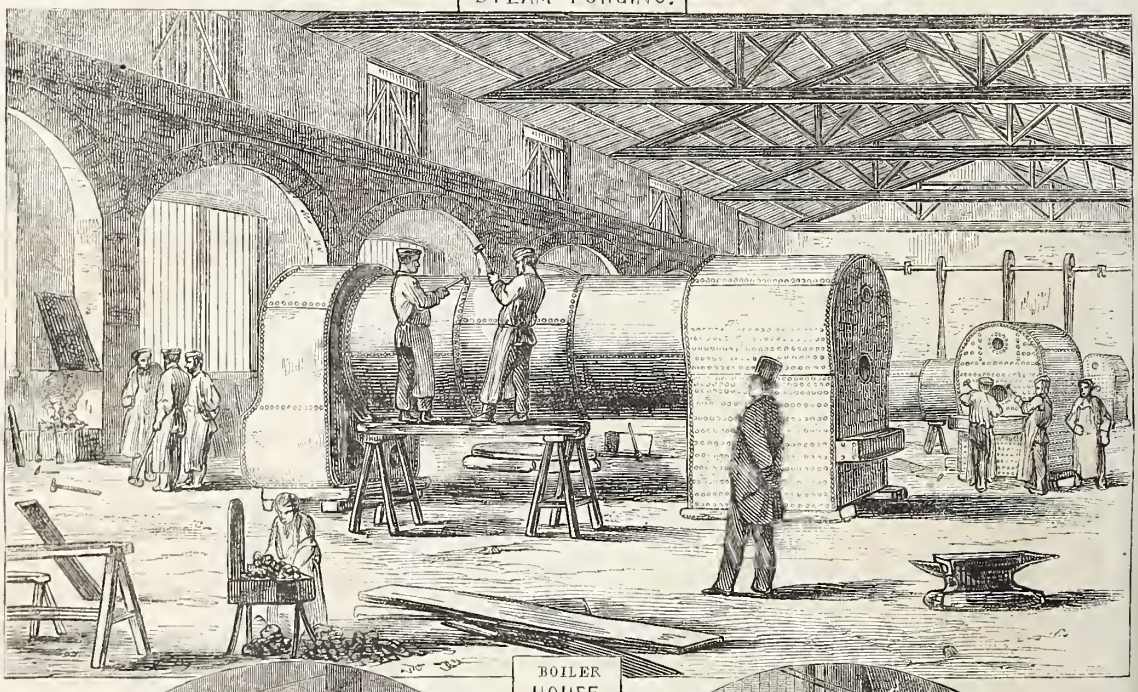
At the opposite end of the shop appears the hydraulic-press, by means of which the wheels of a locomotive, however large or weighty, are unrelentingly forced on their appointed axles. Our illustration also shows one of the large lathes for turning eight-feet wheels, and also the machine for grinding steel tires, both in a fitting-shop somewhat distant from the one which has now been described. Above this shop is another, in which all the smaller and lighter parts of a locomotive are turned, in about forty-five lathes, of a proportionately lighter description than are required for the heavier work. At the end of this shop is a door, leading into the brass-finishing shop, the name of which describes the processes carried on. There is yet another, called the grinding-shop, for many parts of a locomotive that were formerly finished by filing, are now ground; and adjoining this is the coppersmith's-shop, in which the feed-pipes and similar parts are made.

Finally, there is the erecting-shed, in which all the parts of a locomotive, consisting of no fewer than 5,416 pieces, are put together. To the left, in the foreground of the engraving, may be seen one of the large eight-wheeled locomotives, similar to that noble specimen of art, "the Lord of the Isles," which many people at the Crystal Palace supposed was merely for show, not knowing that three like it are actually running on the Great-Western Railway. The Colossus that now catches the eye needs only the aid of the painter and varnisher to be fully prepared to run, in its best attire, its mighty course. To the right, on a level with this locomotive, may be observed a half-finished goods-engine, which is readily distinguished from one intended for passengers by its having the wheels of equal size. As we look towards the other end of the shed, there will be perceived a row of locomotives in different conditions, and some as mere bodies. Midway, however, between the roof and the floor, is a traversing-table, running from end to end of the building, and used for the *very light* work of lifting up engines *bodily*, to put under or take away their wheels. This stupendous result is attained by means of a hydraulic apparatus, holding from eight to ten gallons of water!

Thus have we traced, with needed brevity, the processes carried on in the great factory at Swindon. The locomotive, having all its parts made with perfect accuracy, "must be put together," according to Mr. Robert Stephenson, "as carefully as a watch," and when painted, varnished, and oiled, is fully prepared to start on its wonderful career. It is estimated that, besides ordinary preservation in working order, a passenger-engine will require new tubes and other heavy repairs, after running an average of about 95,000 miles, incurring an expenditure of about £400. It will thus be restored to a condition enabling it to work another distance of 95,000 miles; at the end of which it will need still heavier repairs. When these have taken place it will be ready to run a similar distance, at the termination of which repairs will be necessary to the amount of about £400; but after running 95,000 miles more, the engine will require re-erection, at a cost of about £1,000; always assuming that it has, meanwhile, been maintained in as perfect working condition as possible. The total of these periodical outlays is £2,480, and the mileage 380,000 miles, giving about three-halfpence per mile as the average deterioration of the machinery. The usual distance run annually by a locomotive is about 30,000 miles; which allows about three years and a quarter as the time at which the periodical repair becomes necessary.

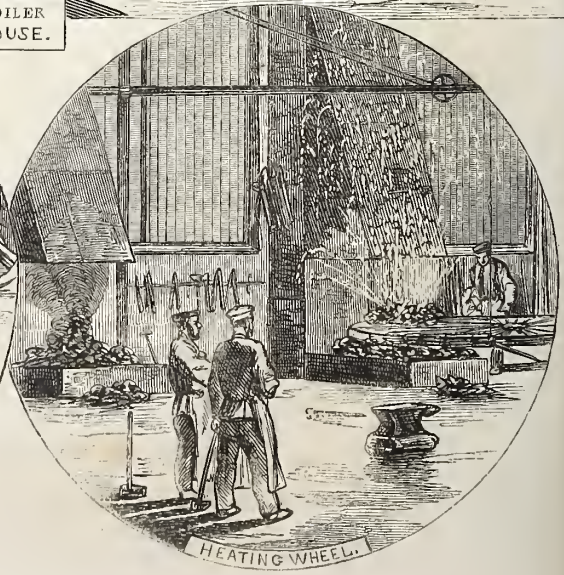


STEAM FORGING.



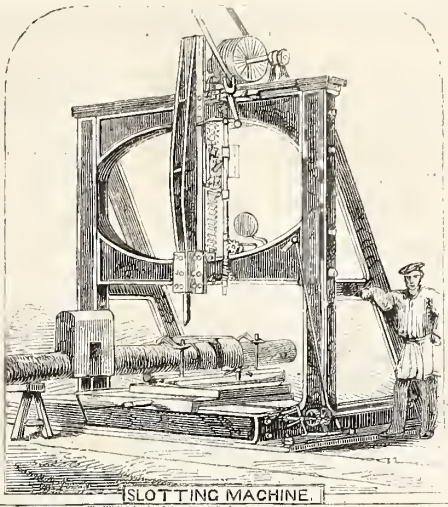
BOILER HOUSE.



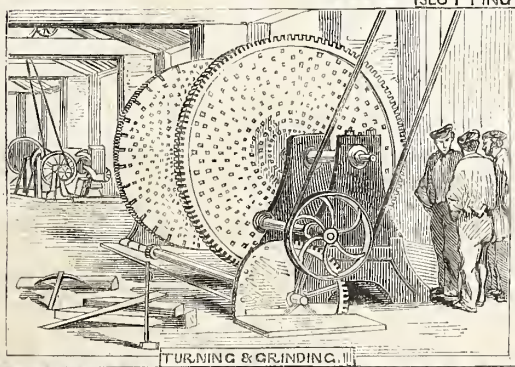


HEATING WHEEL.

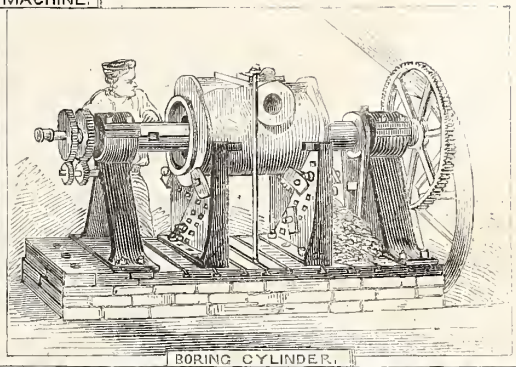
THE GREAT WESTERN RAILWAY COMPANY'S WORKS AT SWINDON.



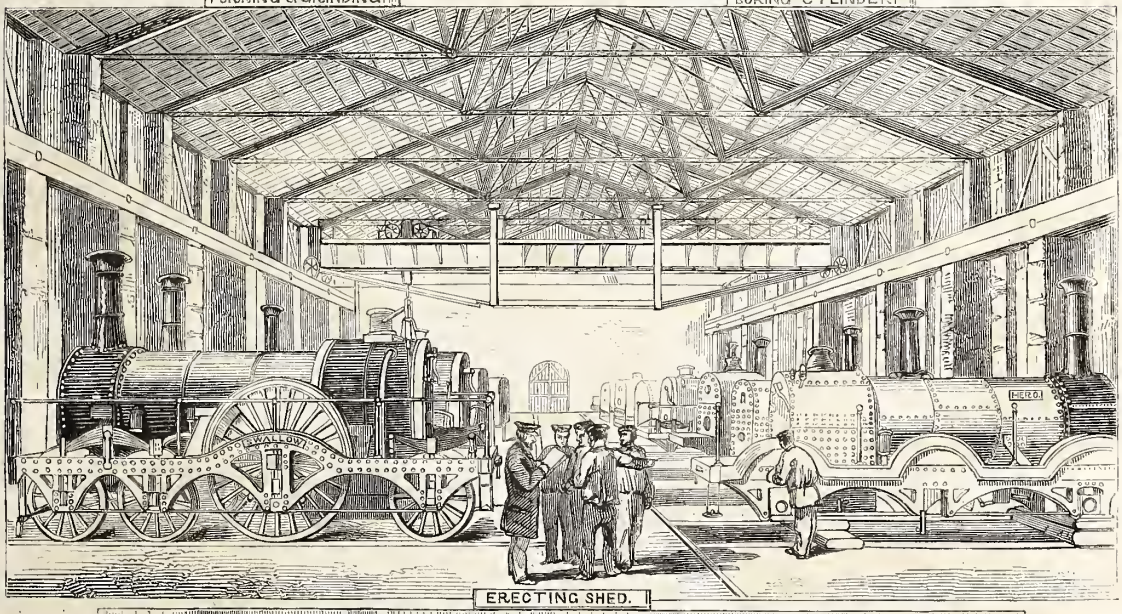
SLOTTING MACHINE.



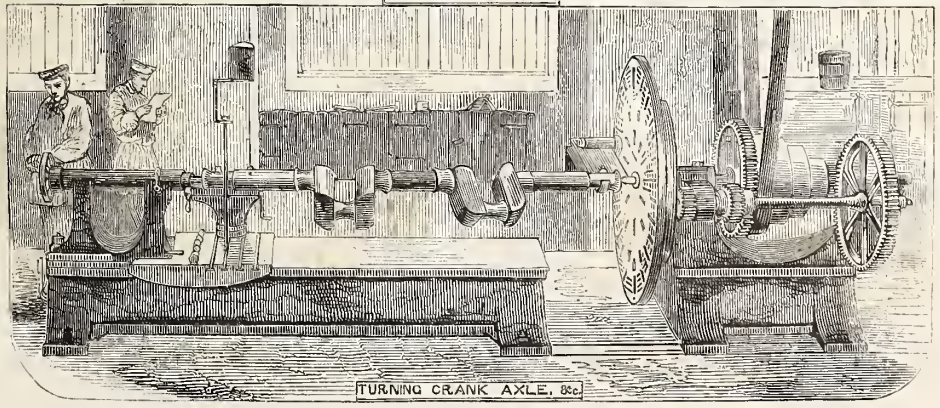
TURNING & GRINDING.



BORING CYLINDER.



ERECTING SHED.



TURNING CRANK AXLE, &c.

THE GREAT WESTERN RAILWAY COMPANY'S WORKS AT SWINDON.

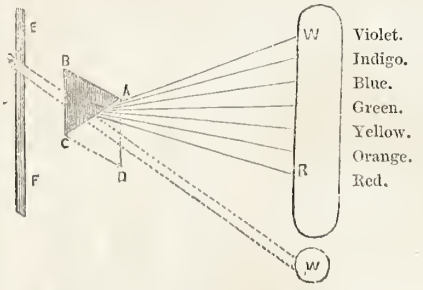
RECENT DISCOVERIES IN PHOTOGRAPHY.

One of the most interesting discoveries of the present day, is that of taking pictures, whether landscape or portrait, by means of light. The most suitable and expressive term for these is "sun-pictures;" and, although the Sun is not a member of the Royal Academy, and therefore cannot attach "R.A." to his name, yet nowhere can we find more faithful or truthful representations than those taken by this really great artist.

The terms Daguerreotype, Talbotype, Calotype, &c., have been applied to various kinds of sun-pictures. The word Photography is derived from two Greek words, *phos* (light) and *grapho* (I write). The term Daguerreotype owes its origin to M. Daguerre, the discoverer of the art of taking sun-pictures on silvered plates of metal. The words Talbotype and Calotype are applied to sun-pictures taken on paper, the discovery of which is due to Mr. Fox Talbot, whose researches are well known to have considerably advanced the photographic art. Other appellations have been employed to designate various kinds of photographic pictures by Mr. Hunt and Sir John Herschel, which, though extremely interesting, cannot here be more particularly enlarged upon. It is desirable that all these various terms should be discarded, and the simple designation of "sun-pictures" on paper, glass, &c., everywhere adopted.

In order to give our readers a correct idea of the mode in which sun-pictures are formed, we must first say a few words on the light, which, emanating from the sun, is the agent employed in their production. Sir Isaac Newton discovered, that when a ray of white or colourless light was made to pass through a glass prism, it was decomposed or divided into *seven* colours, termed by him primitive colours—viz., violet, indigo, blue, green, yellow, orange, and red, as indicated in the accompanying diagram. Sir David Brewster, following out the discovery of Newton, ascertained that, instead of seven, there exist in fact only *three* primitive colours, blue, yellow, and red, which, by combination with each other, produce the violet, indigo, orange, and green, as secondary colours.

Fig 1.

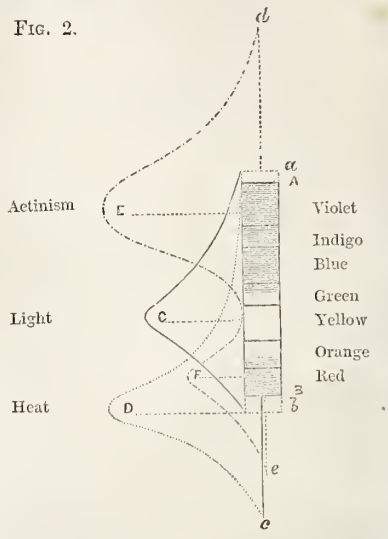


The above diagram shows also the refraction or bending of the ray of light in passing through the glass prism, which, but for the refracting power of the prism, would pass to the point marked w.

We now come to notice certain peculiarities existing in this *spectrum*, or decomposed ray of light, which must be here explained. Sir W. Herschel found, that a thermometer placed in different parts of the spectrum indicated variations of temperature, showing that the different colours possessed different heating powers, gradually increasing from violet, in which it was least, to red, the maximum point being just beyond the red colour. Previous to this, it was known that light produced a blackening influence on paper moistened with a colourless solution of nitrate or chloride of silver, and the discovery above referred to, led to the investigation, whether the chemical effect thus produced by light was due to heat or to some other cause. The result of these investigations, conducted chiefly by Mr. Hunt and Sir J. F. W. Herschel, led to the conclusion that the chemical effects of light are not due to the heat present in the rays, but that, on the contrary, the greatest amount of chemical action takes place at the violet end of the spectrum, where the heating power is least, diminishing in proportion to its approach to the red, where the heat is greatest.

Experiments have also shown, that the luminous or light-giving part of the ray is greatest in the yellow colour, diminishing towards either end of the spectrum. Light, therefore, may be said to be composed of three distinct fluids, producing heating, chemical, and luminous effects; the relation of which to each other is exemplified in the following diagram:—

Fig. 2.



Various terms have been suggested as appropriate to distinguish that part of the light which produces all the chemical changes noticed in photographic experiments; that of *actinism* (from the Greek word *aetin*, a ray), though open to some objections, is the one now generally adopted. The shaded portion of the above diagram represents the colours as they occur in the decomposed solar beam, and the curved lines indicate the relative amount of actinism, light, and heat, the former of which is greatest at E, light being most intense at C, and heat greatest at D.

Having thus described the nature of the light in reference to its action as a photographic agent, we now proceed to speak of the apparatus and means employed in obtaining sun-pictures. Most of our readers are no doubt acquainted with the common camera obscura, or darkened chamber, in which light is admitted through a small hole in which a lens is fixed, the object being in the focus of the lens—that is to say, the rays of light from the object fall on the lens, and thence passing into the chamber or box are reflected by means of a mirror, showing the object delineated on a piece of ground glass, from whence it is copied by the artist. This apparatus is not suited for Photography.

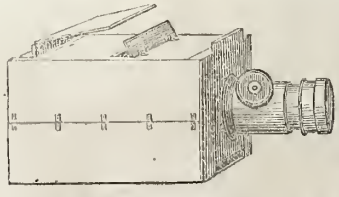
The simplest description of camera applicable to photographic purposes is a cigar-box, blackened inside, having a hole cut in the front part to admit a lens, and the hinder part of the box placed on hinges, so as to fall back to receive the paper, glass, or metal plate, on which the object is to be delineated. The annexed engraving shows a camera of the simplest form, in which A is the lens.

Fig. 3.



The most useful and complete camera for general photographic purposes, is that represented in the annexed engraving:—

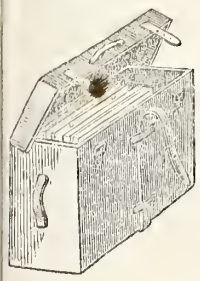
Fig. 4.



The front of this camera, holding the lens, has a vertical adjustment, which enables the relative proportion of foreground to sky in the required picture to be altered without disturbing the position of the camera. It is adapted also for portraits as well as views. When not required for use, the lens is unscrewed, the

front and sides lifted from their grooves, and the body of the camera folded together by the hinges shown in the engraving. By this arrangement, the camera-box, together with the slides for prepared paper, glass, or silver plates, and all the other articles required, can be conveniently packed in the smallest possible space in the leather case shown in the accompanying engraving.

Fig. 5.



We will first describe the method of taking Daguerreotype views. For this purpose a copper plate, covered with a perfectly pure and polished surface of silver, is employed, entirely free from grease, or any oily substance. The surface of this silvered plate is first exposed to the vapour of iodine, by which means a coating of iodide of silver is produced—a preparation capable of being acted upon by the chemical or actinic portion of the solar light. For this purpose the plate D is introduced into an apparatus of the kind shown at Fig. 6, or a still better one as represented at Fig. 7, in which latter it is exposed both to the action of iodine and also that of a preparation of bromine, the use of which is found to accelerate the next operation.*

Fig. 6.

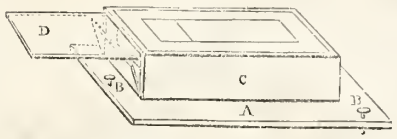
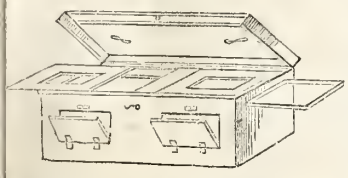
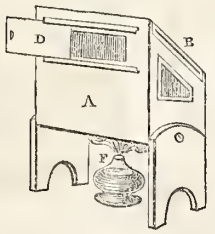


Fig. 7.



When the plate has received the required coating of iodine, &c., as above mentioned, it is ready to be placed in the camera. Prior to the introduction of the plate, the focus of the lens of the camera is adjusted with the greatest care, until a perfectly clear and distinct representation of the object to be taken, is seen on a piece of ground glass placed in exactly the same position as the plate is to occupy. The focus being thus obtained, the ground glass is removed, and the iodized plate introduced into the camera. The result of this exposure of the plate in the camera, is a perfect delineation of the landscape or other object, which in the case of the ground glass, though appearing on its surface, was not fixed, but which, in the case of the prepared plate—although at this stage of the process not actually visible—is rendered so by the introduction of the plate into the mercury-box, here shown, in which B is the prepared plate, and C a small yellow glass window, over which slides a shutter D. By the heat of a spirit lamp, the mercury, placed in an iron cup, is volatilised, and the vapour coming into contact with the plate produces such an action, as leads to the development of the picture in the course of from five to twenty minutes. The plate is then dipped in a solution of hyposulphite of soda, for the purpose of removing the sensitive coating first applied, and then washed in distilled water. A solution of chloride of gold with hyposulphite of soda is then applied to the surface of the plate, for the purpose of fixing the picture, and thus rendering it less liable to be acted upon by external circumstances. At present we are unacquainted with any method of obtaining these pictures in the natural colours of the objects delineated, the lights and shades only being represented. They may, however, be coloured by hand, in the same way as a painting, and this, when skilfully performed, produces a very pleasing effect.

Fig. 8



In the case of the Calotype, or Talbotype, paper is employed, instead of the silver plate used in the Daguerreotype process. The paper is first prepared on one side with a solution of nitrate of silver, after which it is brought into contact with a solution of iodide of potassium, by which means a coating of iodide of silver is formed on the surface of the paper. It is then washed, to remove the nitrate of potash also formed, which, if not removed, would interfere with subsequent operations.

The iodized paper thus prepared is not in the least sensitive to light. In order to give it sensitiveness, a solution of gallo-nitrate of silver and acetic acid is applied to it, after which, while still damp, it is placed in the camera between two pieces of plate glass, where, by a few minutes' exposure, it receives the impression of the landscape or other object, as in the Daguerreotype process.

When the paper is removed from the camera, very little or no trace whatever of a picture is visible, until it has been subjected to the action of a solution of gallic acid and aceto-nitrate of silver, which is applied to the surface of the paper on which the latent image has been formed, the development of the picture being accelerated by the cautious application of heat. It is then washed, first in distilled water, and afterwards in a solution of hyposulphite of soda, for the purpose of removing the nitrate and iodide of silver, and so fixing the picture that it may undergo no further change when exposed to the light. It is lastly dried between folds of blotting-paper.

The picture thus obtained, is, however, a negative one—that is, the positions of the objects, together with all the lights and shades, are reversed with respect to their natural appearance. In order to obtain their positive or correct representation, the negative picture is laid perfectly flat and smooth on paper prepared with muriate of baryta and nitrate of silver, and the whole being placed in the reversing frame and exposed to the light, a positive or correct picture is produced.

We now come to speak of sun pictures on glass, the perfect transpareney and evenness of which, renders it peculiarly fitted for photographic purposes. Many processes have been devised for rendering plates of glass thus available; we shall only describe the albumen and collodion processes, as these give the best results. The following is the collodion process:—The prepared collodion (solution of gun cotton in ether) is poured on a piece of flat glass, which is then immersed in a solution of nitrate of silver, after which it is introduced in its moist state into the camera. The picture thus taken is developed by subsequent immersion of the plate in a solution of pyrogallic acid with acetic acid; after which the plate is washed, and then covered with a saturated solution of hyposulphite of soda, which serves to fix the picture. These pictures are more or less negative; but the most beautiful and decided positives may be obtained by adding a small quantity of nitric acid to the pyrogallic solution. Purple pictures may also be obtained by using acetate of lead, and green pictures by the employment of acetate of lime and ordinary gallic acid. The pictures thus obtained may be treated as negative pictures, from which positive may be obtained in the usual way.

Albumen process.—This process is, at the present time, the object of much practical research on the part of photographers, and it was the improvements recently described by Mr. Fox Talbot in this process, which suggested to us the idea of giving this outline of the art of Photography. Mr. Talbot has succeeded in rendering the plate of glass so sensitive, as to be capable of receiving the impression or picture of printed characters placed on a rapidly-revolving wheel, the light employed being that of an electrical battery. Mr. Talbot's method of imparting this great degree of sensitiveness to the glass plate is as follows:—The liquid portion of the white of an egg (albumen) is mixed with an equal quantity of water, and spread very evenly upon a glass plate, which is then dried at the fire. The plate thus coated with albumen is next dipped into an aqueous solution of nitrate of silver, to which a large quantity of alcohol has been added, one ounce of the mixture containing three grains of the nitrate. The plate is then dried, washed with distilled water to remove any superfluous portions of nitrate of silver, and again coated with albumen, in drying which care must be taken that too much heat is not employed. A mixture is next prepared of a solution of prototodide of iron, an equal volume of acetic acid, and ten volumes of alcohol. After this mixture has stood for two or three days, the plate is dipped into it for a few seconds, after

(*Continued on page* 110.)

* An Exhibition prize medal was awarded for this bromo-iodine box, to Messrs. Horne, Thornthwaite, and Wood, the general excellence of whose photographical apparatus is indisputable.

MODERN SCULPTURE.—MARBLE GROUPS FOR THE COLUMN OF PEACE AT BERLIN.



ENGLAND: AN EMBLEMATIC GROUP IN MARBLE FOR THE COLUMN OF PEACE AT BERLIN. BY PROFESSOR FISCHER.

The Column of Peace was finished in the year 1843, in the square known as the "Belle Alliance," in Berlin, and inaugurated on the 3rd of August, the birthday of the late King Frederick William III., who had laid the first stone of this national monument.

This monument, erected by the venerable monarch as a peace-offering to generations yet to come, was the deep, truthful expressions of a heart still influenced by long years of past contest. Well was he surnamed by his subjects "The Just," for perhaps no monarch more entirely deserved so distinguished a title.

The execution of this monument proves how completely the son has appreciated the comprehensive idea of his father. Although the Column of Peace is of itself of artistic and nation importance, yet the well-known taste for art which Frederi William IV. has so often strikingly exhibited, suggested to hi that this noble work was still unfinished.

To render the symbol complete, it was necessary to embody, this monument, a representation of that united power whi gained for the trembling German people a sweet peace after deadly struggle; and that decisive moment was therefore chosen which the lowering thunder-clouds were scattered with an i domitable courage, and the peaceful sunbeams were again visibl —the battle of Waterloo.

Profesor Fischer, a sculptor, whose "Shield for the Prince f Wales," and "Statue of Moses," at Berlin, had already rowned him with celebrity, was amongst those who sent in de-igns for the national monument. His ideas at once met with ıe King's approval, and he was commissioned to put them into xecution forthwith. It was determined that the lofty Column f Peace should be decorated by four gigantic groups in marble—ne at each corner, on a separate pedestal—each to represent ne of the nations engaged in the great struggle against the 'rench Emperor. We present our readers with engravings of wo of these emblematic groups, now almost completed. The one epresents Englaud, the other Belgium, and Nassau, and the veteran, and the fierceness of the monarch of the forest, are embodied with wonderful truthfulness.

Until the completion of the column, it will be impossible to realise the full sublimity of the idea to which it owes its origin. From the cold lips of these groups of "breathing marble" the spectator may learn as grand a story of suffering, heroism, and fortitude, as any to be found in the pages of history. The four nations which they symbolise were brothers in arms through bloody war of twenty years duration. On field and flood, throughout every corner of Europe, they flung away life and treasure to prevent their being absorbed in the great centralisation of Napoleon. The co-mingled dust of their patriot dead has moul-



ELGIUM AND NASSAU: A GROUP IN MARBLE INTENDED TO DECORATE THE COLUMN OF PEACE AT BERLIN. BY PROFESSOR FISCHER.

etherlands. The remaining two are, at present, still in odels, and will symbolise Prussia and Brunswick. England, the full panoply of a Roman warrior, but with the battle-axe the old Saxons, stands with uplifted arm, and in an attitude of erce determination, over the body of his fallen comrade, while ıe leopard at his side growls fiercely upon the approaching foe. is a fine conception, and admirably worked out. Belgium and assau are represented by an old warrior sitting on an enraged on, and watching with interest the flight of the arrow which the dent youth at his side has just discharged from his bow. The ger impetuosity of the boy soldier, the steady calmness of the dered now for many a year in the fertile corn-fields of Waterloo and their descendants can pay no worthier tribute to their valour and devotion than by consecrating one of the noblest triumphs of modern art to the memory of the cause for which they fought.

It was the intention of Professor Fischer to have shown small clay models of these spirited marbles at the late Exhibition; and it is to be regretted that circumstances occurred which prevented his putting it into execution.

The artist who has transferred these groups to wood has caught the air, attitudes, and expressions of the figures with amazing fidelity.

PHOTOGRAPHY.—*Concluded from page* 107.

which it is rapidly dipped once or twice in a solution of nitrate of silver, containing seventy grains to one ounce of water, two parts of acetic acid being added to each three of the solution. The plate has now acquired a very high degree of sensibility. It is now placed in the camera in the usual manner, and in order to bring out the picture obtained, the plate is next dipped into a solution of protosulphate of iron, containing one part of a saturated solution diluted with two or three parts of water. The image appears very readily. After having been washed with water, the plate is placed in a solution of hyposulphite of soda, which in about one minute causes the picture to brighten up exceedingly by removing a kind of veil which previously covered it; after which the plate is washed with distilled water, and the process is terminated. A coating of albumen or varnish is a useful addition to preserve the picture from accident.

With the use of such a sensitive preparation as that above described, it is in our power to obtain pictures of all moving objects, no matter how rapid their motion, provided we have the means of sufficiently illuminating them with a sudden electric flash.

The question may be asked—of what use is Photography? To this we reply, in the language of the author of the "Poetry of Science":—"By means of Photography we are enabled to preserve the lineaments of those who have benefited their race by their genius or their bravery. By the agency of those very rays which give life and brilliancy to the laughing eye and roseate cheek, we can at once correctly trace the outline of the features we admire, and fill in those shadowy details which give the picture the charm of *vraisemblance*. The admirer of nature may copy her arrangements with strict fidelity. Every undulation of the landscape, every projecting rock or beetling tor, each sinuous river, and the spreading plains over which are scattered the homes of honest industry and peace, intermingled with the humble temples in which simple-hearted piety delights to kneel—these, all of these, may, by the sunbeam which illuminates the whole, be faithfully pencilled upon our chemical preparations."

The recent improvements patented by Mr. Talbot will prove of great use to the scientific traveller, inasmuch as he will be now enabled to take with him a supply of glass plates, partly prepared at home, and by means of a simple addition of a glass cell to the hinder part of the camera, and the assistance of a few bottles of chemical solutions, and a small curtain, take any number of landscapes, which at the close of the day, or the day following, he may finish at his leisure, thus rendering him independent of a darkened room in which to take his sun-drawn pictures.

Of these and various other practically useful and interesting applications of Photography we shall say more on a future occasion.

THE LADIES' DEPARTMENT.

BERTHA, IN MUSLIN APPLIQUE.

MATERIALS.—Widow's lawn and Brussels' net, sufficient of each to cut out a bertha, with ample margin; embroidery cotton, No. 60; Mecklenburgh, No. 120; sewing cottons, Nos. 50, 90, and 150; and pearl edging.

In our enumeration of the various kinds of embroidery, we specified "muslin appliqué" as one of those most in vogue at present. In the Swiss department of the Great Exhibition some very beautiful specimens were seen, in polkas, mantles, and other articles of attire. These are, however, of so elaborate a character, and so tedious to work, that we have preferred giving, as a first sample of this sort of embroidery, something more easily executed and more generally useful.

A section of the design being given of the full size, the whole pattern must be drawn from it. The sprays gradually increase in size to the centre of the back, where the pattern corresponds with that at the lower part of the corner. As the dimensions of the bertha must necessarily depend on the figure of the wearer, a paper pattern should be cut to fit, and from this the size is to be taken. The design must then be drawn on white paper, over which the muslin being laid, the pattern may be traced out with a very fine camel's hair brush dipped in a solution of indigo, or stone blue and thin gum-water. The Brussels net is then tacked underneath the muslin, first all round the edges, and then over the surface of the bertha, wherever the threads will not interfere with the work. The tracing is next to be done, with embroidery cotton No. 60. This is merely running the whole of the pattern over the blue lines. No fastening on or off is required, the thread being merely cut off closely at the end of every spray or scroll. In tracing avoid going over the same place twice, as that part would necessarily be thicker. Those places which are filled in with point-lace stitches may, however, be run twice round. As the muslin and net being both cut away, it is necessary to work them in button-hole stitch for the sake of strength. Tracing should be done in very short stitches, care being taken that the needle should pass under a bar of net at every stitch. A good worker will trace every part a second time with the cotton with which she sews over the outlines. Here the stitches should be *long*, only passing through the work at points and curves, as the object is to give a firmer appearance to the sewing. Some people merely hold in a thread as they sew; but the mode of proceeding we have advised is by far the neatest. Every part is then sewed over the stitches, being close and very regular. The only parts not sewed are those where the muslin and net are both cut out. These are edged with close button-hole stitch. The thread must be fastened-off at the back of the work at the end of every needleful, the new thread being run a stitch or two along the line. Beyond the outer-line of sewing, a row of button-hole stitch must be worked, as an edge, entirely round the bertha. The pearl edging is subsequently added to this. To avoid contracting, or *puckering* the work, always hold it so that the muslin is straight on the finger. If held loose, it is certain to be puckered.

When every part is sewed over, the muslin is cut away from the net in those parts which form the *ground*, a pair of lace scissors being used for this purpose. Then, in the round, open spaces, single or double mechlin-wheels are worked (according to the size of the vacancy). The other openings are filled with English lace. The large spaces of plain net within the scrolls, and *not* forming the ground, may be ornamented with any fancy stitches which the taste of the worker may suggest. The specimen we have given is very simple and effective. A row of vandykes is made thus:—Darn backwards and forwards, so as to fill up three holes of lace; in the next line of holes, fill two; in the next, one; repeat up the line: make another row, of which the points shall meet these points, leaving a diamond of nine holes in every space. Do a single spot in the centre of each diamond. Repeat this pattern, leaving one or more lines of net between. The darning is done by taking up one thread and missing the next. The thread to be used for this purpose is extremely fine; it has, indeed, been manufactured expressly for this and similar delicate parts of lace-work.

Muslin appliqué may be transferred to new net, when the old is worn out, with very little trouble. The sprigs may then be differently arranged, according to the fashion.

TOILET SACHET.

MATERIALS.—Three-quarters of a pound of knitting cotton, No. 16; and tapered indented crochet-hook, No. 20. A yard of pink or blue ingrain gingham.

This article, made in the form of an envelope, is intended to hold the night-dress and cap, and lies on the pillow during the day, forming an elegant appendage to the drapery. The lining should, of course, be of a tint to suit the rest of the furniture, and may be of silk, if preferred; but, as gingham will wash with the cotton, it is less troublesome. The sachet is worked in crochet, the edging in knitting, for which the receipt will afterwards be given.

Make a chain of 285 stitches, with three more, which you will twist; miss these three, and work in d.c. along the row. Break off at the end.

2nd row: D.c., working on the third of the three chain at the beginning of the row, as if it were a d.c. stitch.

Observe, that as there are bits of thread left at the ends of each row, they should be worked in at the next, which may easily be done, as there are two close squares at the beginning and end of every row.

3rd row: 2 close squares; then open squares till you come to within 7 d.c. of the end. Finish with 2 close squares.

4th row: (*b*) 2 close, 19 open, 4 close, 20 open, (*a*) 5 close.

5th row: (*b*) 2 close, 14 open, 2 close, 2 open, 6 close, 17 open, (*a*) 9 close.

6th row: (*b*) 2 close, 13 open, 4 close, 1 open, 6 close, 15 open, (*a*) 13 close.

7th row: (*b*) 2 close, 8 open, 2 close, 2 open, 14 close, 12 open, 5 close, (*a*) 5 open.

8th row: (*b*) 2 close, 7 open, 4 close, 2 open, 15 close, 10 open, 5 close, (*a*) 7 open.

9th row: (*b*) 2 close, 3 open, 8 close, 1 open, 16 close, 8 open, 6 close, 2 open, (*a*) 3 close.

10th row: (*b*) 2 close, 2 open, 2 close, 3 open, 10 close, 6 open, 5 close, 7 open, 7 close, 1 open, (*a*) 5 close.

11th row: (*b*) 2 close, 1 open, 6 close, 1 open, 8 close, 1 open

close, 1 open, 4 close, 7 open, 7 close, 1 open, 2 close, (*a*) 1 open.

12th row: (*b*) 2 close, 4 open, 4 close, 1 open, 6 close, 1 open, close, 1 open, 3 close, 6 open, 8 close, 1 open, 2 close, (*a*) open.

13th row: (*b*) 2 close, 5 open, 4 close, 1 open, 4 close, 1 open, close, 4 open, 5 close, 3 open, 1 close, 2 open, 8 close, 1 open close, (*a*) 3 open.

14th row: (*b*) 2 close, 6 open, 4 close, 1 open, 2 close, 1 open, close, 6 open, 3 close, 4 open, 5 close, 1 open, 5 close, 1 open, close, (*a*) 3 open.

15th row: (*b*) 2 close, 5 open, 5 close, × 1 open, 2 close, × wice, 14 open, * 5 close, 1 open, * twice, 2 close, (*a*) 3 open.

16th row: (*b*) 2 close, 4 open, 7 close, 1 open, 1 close, 1 open, close, 15 open, 3 close, 2 open, 4 close, 1 open, 2 close, (*a*) 5 open.

17th row: (*b*) 2 close, 6 open, 5 close, 1 open, 1 close, 1 open, close, 20 open, 4 close, 1 open, 2 close, (*a*) 5 open.

18th row: (*b*) 2 close, 7 open, 4 close, 1 open, 1 close, 1 open, close, 19 open, 4 close, 1 open, 2 close, (*a*) 7 open.

19th row: (*b*) 2 close, 8 open, 4 close, 2 open, 2 close, 11 open, close, 5 open, 4 close, 1 open, 2 close, (*a*) 7 open.

20th row: (*b*) 2 close, 8 open, 4 close, 2 open, 2 close, 9 open, close, 5 open, 4 close, 1 open, 2 close, (*a*) 9 open.

21st row: (*b*) 2 close, 9 open, 4 close, 1 open, 3 close, 7 open, close, 5 open, 4 close, 1 open, 3 close, (*a*) 4 open, 3 close, 2 open.

22nd row: (*b*) 2 close, 10 open, 3 close, 1 open, 4 close, 5 open, close, 3 open, 4 close, 1 open, 3 close, (*a*) 3 open, 3 close, 1 open, close, 2 open.

23rd row: (*b*) 2 close, 11 open, 3 close, 1 open, 4 close, 5 open, 1 close, 1 open, 3 close, 3 open, 1 close, 1 open, 1 close, (*a*) 1 open.

24th row: (*b*) 2 close, 6 open, 8 close, 2 open, 18 close, 1 open, close, 3 open, 1 close, 1 open, 1 close, (*a*) 1 open.

25th row: (*b*) 2 close, 5 open, 11 close, 2 open, 14 close, 2 open, close, 3 open, 2 close, 1 open, 1 close, (*a*) 1 open.

26th row: (*b*) 2 close, 4 open, 13 close, 2 open, 11 close, 3 open, close, 3 open, 4 close, (*a*) 1 open.

27th row: (*b*) 2 close, 3 open, 4 close, 7 open, 4 close, 3 open, close, 4 open, 5 close, 3 open, (*a*) × 2 close, 1 open, × 3 times, close.

28th row: (*b*) 2 close, 2 open, 4 close, 22 open, 2 close, 1 open, close, 4 open, 2 close, 1 open, 1 close, (*a*) 3 open.

29th row: (*b*) 2 close, 1 open, 4 close, 1 open, 15 close, 2 open, close, 3 open, 4 close, 4 open, 2 close, 1 open, 2 close, (*a*) 3 open.

30th row: (*b*) 2 close, 1 open, 3 close, 1 open, 15 close, 2 open, close, 2 open, 6 close, 5 open, 2 close, 1 open, (*a*) 3 close, 2 open, 2 close.

31st row: (*b*) 2 close, × 1 open, 3 close × twice, 5 open, 5 close, 2 open, 5 close, 1 open, 7 close, 5 open, 2 close, 1 open, 2 close, 2 open, (*a*) 1 close.

32nd row: (*b*) 2 close, × 1 open, 2 close, × twice, 5 open, 5 close, 2 open, 6 close, 1 open, 7 close, 5 open, 3 close, 1 open, 2 close, 2 open (*a*) 1 close.

33rd row: (*b*) 2 close, 2 open, 4 close, 4 open, 6 close, 2 open, 5 close, 1 open, 7 close, 5 open, 3 close, 1 open, 2 close, 3 open, (*a*) 1 close.

34th row: (*b*) 2 close, 2 open, 3 close, 3 open, 6 close, 3 open, 5 close, 1 open, 8 close, 4 open, 3 close, 1 open, 3 close, (*a*) 4 open, 1 close, 2 open.

35th row: (*b*) 2 close, 3 open, 1 close, 3 open, 5 close, 4 open, × 5 close, 1 open × twice, 2 close, 4 open, 3 close, 1 open, 3 close (*a*) 5 open, 1 close, 3 open.

36th row: (*b*) 2 close, 6 open, 5 close, 1 open, 2 close, 2 open, 4 close, 2 open, 4 close, 3 open, 1 close, 2 open, 4 close, 1 open, 4 close, (*a*) 5 open, 1 close, 3 open.

37th row: (*b*) 2 close, 5 open, 4 close, 2 open, 3 close, × 1 open, 5 close, × twice, 5 open, 4 close, 1 open, 4 close, 3 open, (*a*) 3 close, 1 open, 1 close.

38th row: (*b*) 2 close, 4 open, 4 close, 1 open, 4 close, 1 open, 6 close, 1 open, 4 close, 5 open, 3 close, 2 open, 4 close, (*a*) 2 open, 8 close, 3 open.

39th row: (*b*) 2 c., 4 o., 3 c., 1 o., 5 c., 1 o., 3 c. × 1 o., 2c., × twice, 1 o., 1 c., 4 o., 3 c., 1 o., 6 c., (*a*) 1 o., 2 c., 2 o., 2 c., 1 o., 3 c., 2 o.

40th row: (*b*) 2 c., 3 o., 4 c., 1 o., 5 c., 1 o., 2 c., 2 o., 5 c., 5 o., 3 c., 1 o., 6 c., (*a*) 1 o., 2 c., 1 o., 4 c., 1 o., 1 c., 1 o., 2 c., 2 o.

41st row: (*b*) 2 c., 3 o., 3 c., 1 o., 6 c., 1 o., 2 c., 2 o., 5 c., 5 o., 2 c., 1 o., 6 c., (*a*) 1 o., 2 c., 1 o., 7 c., 1 o., 2 c., 3 o..

42nd row: (*b*) 2 c., 2 o., 3 c., 1 o., 6 c., 1 o., 3 c., 3 o., 3 c., 5 o., 2 c., 1 o., 6 c., (*a*) 2 o., 2 c., 1 o., 4 c., 1 o., 2 c., 1 o., 3 c., 3 o.

43rd row: (*b*), 2 c., 2 o., 2 c., 1 o., 7 c., 1 o., 3 c., 4 o., 3 c., 4 o., 2 c., 1 o., 4 c., 3 o., (*a*) 2 c., 1 o., 5 c., 1 o., 3 c., 1 o., 2 c., 5 o.

44th row: (*b*) 2 c., 2 o., 4 c., 1 o., 5 c., 1 o., 3 c., 11 o., 4 c., (*a*) 6 o., 2 c., 1 o., 4 c., 2 o., × 1 c., 1 o., × twice, 2 c., 8 o.

45th row: (*b*) 2 c., 2 o., 3 c., 2 o., 4 c., 1 o., 5 c., 10 o., 2 c., 2 o., c., (*a*) 3 o., 2 c., 1 o., 4 c., × 1 o., 1 c., × 3 times, 1 o., 2 c., 6 o.

46th row: (*b*) × 2 c., 2 o., × twice, 4 c., 2 o., 6 c., 9 o., 1 c., 2 o., 2 c., (*a*) 4 o., 2 c., 1 o., 3 c., * 1 o., 3 c., * twice, 2 o., 2 c., 7 o.

47th row: (*b*) 2 c., 3 o., 1 c., 2 o., 3 c., 1 o., 1 c., 1 o., 7 c., 9 o., 4 c, (*a*) 4 o., 2 c., 1 o., 3 c., × 1 o., 2 c., × twice, 1 o., 3 c., 7 o.

48th row: (*b*) 2 c., 5 o., 3 c., 1 o., × 2 c., 1 o., × twice, 3 c., 9 o., 4 c., (*a*) 6 o., 1 c., 1 o., 3 c., 1 o., 2 c., 1 o., 1 c., 2 o., 2 c., 9 o.

49th row: (*b*) 2 c., 4 o., × 3 c., 1 o., × twice, 2 c., 13 o., 4 c., (*a*) 7 o., 1 c., 1 o., 6 c., 2 o., 3 c., 9 o.

50th row: (*b*) 2 c., 4 o., 2 c., 1 o., 4 c., 1 o., 2 c., 7 o., 1 c., 5 o., 3 c., (*a*) 8 o., 2 c., 1 o., 3 c., 2 o., 1 o., 1 o., 2 c., 11 o.

51st row: (*b*) 2 c., 4 o., 4 c., 1 o., 2 c., 1 o., 3 c., 5 o., 2 c. 6 o., 3 c., (*a*) 8 o., 2 c., 3 o., 3 c., 1 o., 1 c., 11 o.

52nd row: (*b*) 2 c., 5 o., × 2 c., 2 o., × twice, 3 c., 3 o., 3 c., (*a*) 19 o., 3 c., 1 o., 1 c., 23 o.

53rd row: (*b*) 2 c., 6 o., 1 c., 2 o., 3 c., 2 o., 7 c., (*a*) 49 o.

54th row: (*b*) 2 c., 10 o., 3 c., 4 o., 4 c., (*a*) 49 o.

55th row: (*b*) 2 c., 11 o., 9 c., (*a*) 51 o.

56th row: (*b*) 2 c., 12 o., 7 c., (*a*) 53 o.

57th row: 2 c., 13 o., 4 c., 57 o., 4 c., 13 o., 2 c.

58th to 78th row inclusive: 2 close squares at each end, and the intermediate all open squares. Finish with two rows of double crochet. Two of these pieces are required.

For the Pointed Piece.—As the narrow edging with which this is trimmed is added at the sides, the piece itself is not so wide as that already given. Make a chain of 268 stitches, and work one row in d.c.

The second is also worked in d.c., but diminished two squares at each end, thus: begin on the *second* d.c. stitch, slip 2, s.c. 2, d.c. till you come to within five of the end, then s.c. 2, slip 2.

Decrease the next and all succeeding rows one square at each end, by working on the first four d.c. stitches of the row 1 slip, 2 s.c., 1 d.c., after which three more d.c., the other end being made to correspond.

The row succeeding the two of d.c. is entirely in open square crochet, except these 7 stitches at the ends.

4th row: (*b*) 1 slip, 2 s.c., 4 d.c., 31 open squares, 3 close, 4 open, (*a*) 3 close. (Observe that in this and all the following rows, the first open square comes over the second of the preceding line. The first and last 7 stitches are not mentioned, as they occur in every row.)

5th row: (*b*) 28 o., 2 c., 3 o., 1 c., 2 o., 1 c., (*a*) 3 o.

6th row: (*b*) 24 o., 3 c., 6 o., 1 c., 1 o., 1 c., (*a*) 3 o.

7th row: (*b*) 23 o., 1 c., 9 o., 1 c., 1 o., (*a*) 3 c.

8th row: 21 o., 1 c., 27 o., 1 c., 21 o.

9th row: Here the initial begins. I have chosen an M as being a common letter; any other may be substituted; care being taken to place it in the exact centre of the space indicated between the brackets. 19 o., 1 c. (7 o., 1 c., 2 o., 2 c., 3 o., 3 c., 11 o.), 1 c., 19 o.

10th row: 12 o., 3 c., 3 o., 1 c. (8 o., 3 c., 1 o., 1 c., 1 o., 2 c., 2 o., 1 c., 10 o.), 1 c., 3 o., 3 c., 12 o.

11th row: 10 o., 1 c., 3 o., 1 c., 1 o., 1 c. (10 o., 1 c., × 3 o., 2 c., × twice, 10 o.), 1 c., 1 o., 1 c., 3 o., 1 c., 10 o.

12th row: 9 o., × 1 close, 2 o., × twice, 1 c., 10 o., 2 c., 2 o. 2 c., 1 o., 1 c., 1 o., 3 c., 9 o.), 1 c., * 2 o., 1 c., * twice, 9 o.

13th row: 9 o., 1 c., 3 o., 1 c. (11 o., 2 c., 2 o., 3 c., 2 o., 2 c., 11 o.), 1 c., 3 o., 1 c., 9 o.

14th row: 9 o., 3 c., (12 o., × 2 c., 2 o., × twice, 3 c., 12 o.), 3 c., 9 o.

15th row: 8 o., 3 c. (12 o., 2 c., 1 o., 3 c., 2 o., 2 c., 1 o., 1 c., 11 o.) 3 c., 8 o.

16th row: 6 o., 1 c., 3 o., 1 c. (11 o., × 2 c., 2 o., × twice, 2 c., 12 o.), 1 c., 3 o., 1 c., 6 o.

17th row: 4 o., × 1 c., 2 o., × twice, 1 c. (10 o., 2 c., 2 o., 2 c., 3 o., 1 c., 11 o.) * 1 close, 2 o., * twice, 1 c., 4 o.

18th row: × 3 o., 1 c., × twice, 1 o., 1 c. (7 o., 1 c., × 2 o., 2 c., × twice, 1 o., 1 c., 2 o., 1 c., 10 o.), 1 c., 1 o., × 1 c., 1 o., × twice.

19th row: 3 o., 3 c., 3 o., 1 c. (7 o., 4 c., 2 o., 2 c., 2 o., 1 c., 2 o., 3 c., 6 o.), 1 c., 3 o., 3 c., 3 o.

20th row: 8 o., 1 c. (8 o., 2 c., 2 o., 2 c., 4 o., 3 c., 2 o., 1 c., 5 o.), 1 c. 8 o. This is the last row of the letter.

21st row: 8 o., 1 c., 27 o., 1 c., 8 o.

22nd row: (*b*) 8 o., 1 c., 9 o., 1 c., 1 o., (*a*) 3 c.

23rd row: (*b*) 7 o., 3 c., 6 o., 1 c., 1 o., 1 c., (*a*) 3 o.

24th row: (*b*) 9 o., 2 c., 3 o., 1 c., 2 o., 1 c., (*a*) 3 o.

25th row: (*b*) 10 o., 3 c., 4 o., (*a*) 3 c.

26th row: Open square crochet, except the ends.

27th: All d.c.

It will be remembered that when the letters *b. a.* occur, the stitches between are to be repeated *backwards*, those following the *a* being the centre of the line, whether few or many.

The knitted edgings for trimming this Sachet are given separately; the narrow one trims the point, which is then sewed to the top of one of the squares; the two squares are then sewed together at the bottom and sides, and the broad lace goes all round. The whole is lined with silk or gingham.

KNITTED LACE.

(For trimming the Toilet Sachet.)

Materials.—Knitting cotton, No. 20; knitting needles, No. 18. Cast on twelve stitches, and knit one plain row.

1st pattern row: Knit 2, × make 1, knit 2 together, × twice, knit 2, make 2, knit 2 together, make 2, knit 2.

2nd: K. 3, p. 1, k. 2, p. 1, k. 2, p. 6.

3rd: K. 2, × m. 1, k. 2 t. × twice, k. 9.

4th: K. 2, m. 2, k. 2 t., k. 1, k. 2 t., m. 2, k. 2 t., p. 6.

5th: K. 2, × m. 1, k. 2 t., × twice, k. 2, p, 1, k. 4, p. 1, k. 2.

6th: K. 5, m. 1, k. 2 t., k. 3, p. 6.

7th: K. 2, × m. 1, k 2 t., × twice, k. 2 t., m. 2, k. 2 t., k. 1, k. 2 t., m. 2, k. 2 t., k. 1.

8th: K. 3, p. 1, k. 4, p. 1, k. 1, p. 6.

9th: K. 2, × m. 1, k. 2 t., × twice, k. 10.

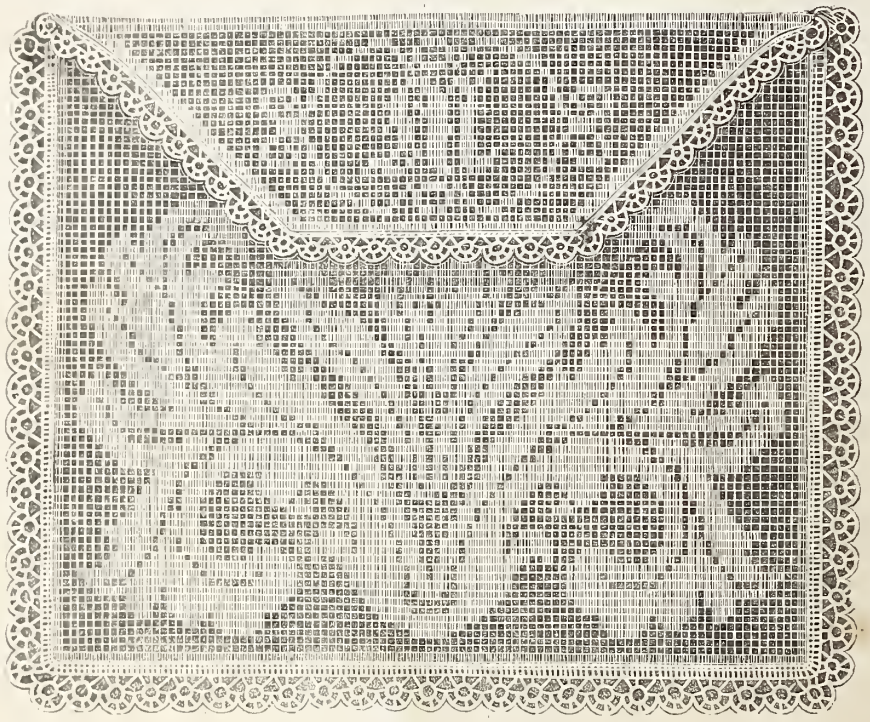
10th: K. 1, k. 2 t., m. 2, k. 4 t., m. 2, k. 3, p. 6.

11th: K. 2, × m. 1, k. 2 t., × twice, k. 4, p. 1, k. 2, p. 1, k. 2.

12th: Cast off 3, k. 2, k. 2 t., k. 2, p. 6.

Repeat these twelve rows as often as may be required.

The contractions used in this receipt are —k., for knit; p., for purl; k. 2 t., for knit two together.



TOILET SACHET.

NARROW EDGING.

(For the Point of the Sachet.)

MATERIALS.—The same needles and cotton. Cast on seven stitches.

1st row: Knit 3, make 2, knit 2 together, make 2, knit 2.

2nd: K. 3, p. 1, k. 2. p. 1, k. 3.

3rd: Plain knitting.

4th: K. 2, m. 2, k. 2 t., k. 1, k. 2 t., m. 2, k. 2 t., k. 1.

5th: K. 3, p. 1, k. 4, p. 1, k. 2.

6th: K. 5, m. 1, k. 2 t., k. 4.

7th: K. 1, k. 2 t., m. 2, k. 2 t., k. 1, k. 2 t., m. 2, k. 2 t., k. 1.

8th: K. 3, p. 1, k. 4, p. 1, k. 2.

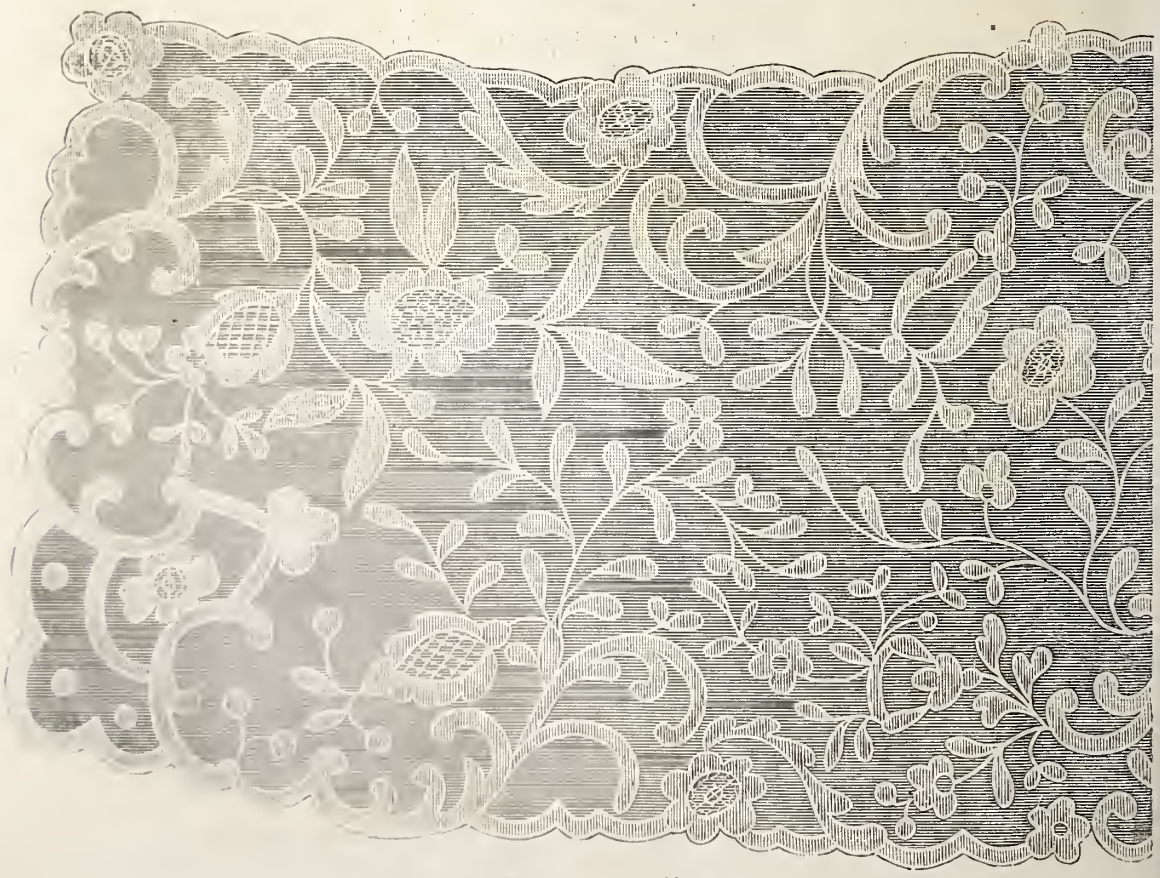
9th: Plain knitting.

10th: K. 1, k. 2 t., m. 2, k. 4 t., m 2, k. 4.

11th: K. 5, p. 1, k. 2, p. 1, k. 2.

12th: Cast off 3, k. 2, k. 2 t., k. 3.

28 patterns will be sufficient of this piece.



BERTHA IN MUSLIN APPLIQUE.—(*See page* 110.)

THE BATTLE OF SEMPACH.—ARNOLD WINKELRIED.

Mountains seem to be the favourite dwelling-place of Freedom. Like the eagle, she seeks the loftiest crags, and leaves the dull monotony of the plains to birds of more ignoble aim; nowhere has she kept her seat with more of unruffled grandeur and heroic courage than on the snow-crowned heights of Switzerland.

"Here Freedom with the rustics sat,
On Uri's rocks, in close divan;
And winged that arrow, sure as fate,
Which ascertained the sacred rights of man."

Every one has read of Tell—his clear eye and steady hand—and marvelled at the unconquerable will and courage never to submit nor yield, which had enabled this handful of mountaineers to maintain their state, through centuries of war and turbulence, unpolluted by the yoke of a foreign invader, and undisturbed by domestic broils. They seemed to have caught some of the spirit which animated the ancient Romans, ere it died amidst the corruptions and debaucheries of the empire; for

"Romans, in Rome's quarrel,
Spared neither land nor gold;
Nor son nor wife, nor limbs nor life,
In the brave days of old."

Amongst the Swiss, time out of mind, every feeling of personal interest appears to have been merged in anxiety for the public welfare, whenever danger threatened the state. The individual then became nothing, and the republic everything; and this cheap defence of nations was handed down from father to son in undiminished fervour. They early obtained renown as infantry soldiers. Far back, in the days of chivalry, these hardy cohorts of mountaineers astonished the mail-clad chevaliers by standing firm, with closed ranks and extended spears, against the fiercest charges of the bravest knights of the age. It was they who first introduced into modern warfare the art of combining large masses of foot-soldiers to act in concert. Previously, all the battle was left to be decided by the cavalry; and infantry were considered useless, except as archers.

Their fame soon spread. All Europe resounded with praises of the men who could, on foot, bid defiance to the couched lance and galloping war-horse, and who, abandoning all resort to single combat, had successfully trained themselves to conquer or die shoulder to shoulder in great masses. Princes sought their aid, and offered them large pay to serve under their banners; and for many centuries the Swiss battalions were found in every battle-field all over Europe, marching to the conflict with the coolness and self-confidence characteristic of the men who looked upon war as an honourable means of earning their daily bread, let the quarrel be what it might. Everyone may remember their last great exploit, in the greatest of modern convulsions, when Louis XVI. fled in terror from the Tuileries, leaving eight hundred of his faithful Swiss Guard without orders or instructions, surrounded by an infuriate mob of 100,000 armed men, the dregs of the faubourgs. The sentinels on duty were one by one cut down, and the comrades stepped to fill their places, and when the officers, in desperation, gave the order to defend themselves, they fought and died with the calmness and silence of a parade, terrifying the surging crowd by the frightful coolness of their splendid discipline. But to return to our subject. For two centuries previous to 1386, the Dukes of Austria had been making a series of unsuccessful attacks upon the liberties of the Swiss cantons. The feudal lords were invariably defeated by the valour of the peasantry. At last Leopold ascended the throne. He was a man of high spirit, great personal courage, and full of family pride. He was burning with the desire to avenge the reverses sustained by his ancestors in their attempts against the liberties of the country. The Swiss again united in a confederation to repel the aggressors of Austria and the seigneurs. The chief ground of complaint was the enormous imposts placed upon commerce, and the heavy tolls levied upon produce carried to the market. The peasantry felt that their very existence was at stake, and that, unless the obnoxious imposts were removed, they must die of hunger in their barren valleys.



(*See page* 114.)

Herman Gessler, the Lord of Grunenberg, had in particular incurred Lions If infamous in the eyes of the people by his cruel exactions. The peasantry of the canton of Lucerne lost all patience, and some of the young men rose in arms, forced his castle-gates while he was at mass, and dismantled the fortifications, and drove him and his retainers out of the district without the loss of a single man. After this the excitement became every day greater. The heated imagination of the populace conjured up signs and omens before their eyes, portending the struggle that was about to take place. Flames of fire were said to leap nightly over the battlements of lordly towers. A man in armour was seen in the heavens flying before a man without armour. Everything combined to rouse the ardour of the peasantry, and natural appearances, which at any other time would have been considered unworthy of notice, were looked upon as sure omens of victory.

Leopold, about this time, returned in triumph from an expedition against Alsace, and swore to chastise the insolence of the Confederation. The feudal lords announced their intention of joining him, and in ten days the cantons received fifty-three declarations of war. The nobles were burning with the desire to wipe out the disgrace of former years, and only regretted that, on entering in so noble a pastime, they had not enemies more worthy of their swords.

Uri, Schwitz, and Unterwald first rose in arms, and called upon the other cantons to join them. Berne alone held back. The first conflicts in the war were distinguished by the frightful atrocities committed by the nobles. Reichensee, a town which had been in its adherence to the Swiss, was taken by storm, and all found in the flames were put to the sword, without distinction of age or sex. Leopold's army was followed by carts carrying ropes to hang the prisoners.

It was believed that the Duke would attack Zurich, as his father had done; and the army of the confederates, numbering twelve thousand men in all, hastened to occupy it. He then suddenly changed his line of march, and directed his whole force against Lucerne and the other unprotected cantons. The Swiss therefore left Zurich to the protection of the burghers, and followed him. On the 9th of July, in 1386, they took up their position in a forest on the borders of Lake Sempach.

Leopold advanced to the attack with his splendid cavalry and mercenary infantry, composed chiefly of *routiers*, or strolling bands, from the south of Europe. On arriving at the foot of the hill, the nobles dismounted, and gave their horses to their squires, disdaining to fight in knightly fashion against "base lackey peasants." The contrast presented by the two armies was striking. The arms of the Swiss were mostly scythes, clubs, or clumsy spears; and they had no protection against the weapons of their enemies except pieces of boards, fastened to their left arms, to ward off the first stroke; and they numbered in all only thirteen hundred men.

The Austrians, on the contrary, were cased in steel from head to foot, and as they marched onward, four thousand strong, their banners waving in the sun, and their gilt helmets glittering brightly in all "the pomp, and pride, and circumstance of glorious war," they presented an array that might well strike terror into the hearts of men less fearless than the hardy mountaineers who awaited their onset. But the battle is not to the strong alone; it is to the vigilant, the active, the brave; and the result of this was a striking instance of what may be achieved by strong arms and stout hearts.

The nobles formed themselves into a serried phalanx, the spears of the fourth rank projecting some feet in front, and thus advanced to the attack. The Baron de Hazenbourg, an experienced warrior, feared the determination of the Swiss, and advised the duke to send for a reserve which he had left behind, near Zurich. His counsels were laughed to scorn. The nobles, however, would not let Leopold rot to engage personally in the combat, or, at least, to remain on horseback. "What!" was his reply to the Baron, "will Leopold of Austria look on while his knights are dying at his feet? No, I will either conquer or remain on the field."

The Swiss rushed on to the encounter with loud cries, but were obliged to halt and kneel before the wall of steel which opposed their progress. It was in vain that they attempted to break through the dense forest of lances; their best and bravest were flung back bleeding and dispirited. Their situation was every moment becoming more perilous. The wings of the Austrian army gradually advanced, so as to form a concave, and threatened to outflank and surround them. They were also in momentary dread of the arrival of the reserve, to attack them in the rear. The devotion of one man saved them, and won the victory.

Arnold Struthan de Winkelried, a native of the Canton of Unterwalden—(his name deserves a place in men's memories through all time)—rushed forward, and crying out, "I'll open a way for you! take care of my wife and children! Switzerland for ever!" grasped a number of spears in his arms, and forcing them together, suffered them to penetrate his own body. His countrymen rushed into the opening with sword and axe, and the nobles were routed with frightful slaughter. Their faithless squires had fled with the horses, and their masters, encumbered by their heavy armour, were unable to fly, and for many a mile were cut down without mercy. In the meantime the advoyer of Lucerne, the heroic Gundoldingen, the second hero of the day, was dying of his wounds. One of his countrymen approached, and asked him to entrust to him the fulfilment of his last wishes. But the subjects which at that moment occupied the thoughts of the dying magistrate were the liberty and happiness of his country. "Tell my fellow-citizens," said he, in a faltering voice, "that the last advice of Gundoldingen was never to allow any advoyer to continue in office longer than one year. This is the wish of one who prays that they may be crowned with victory and prosperity." This conflict was decisive, and established the liberties of the Swiss upon a firm basis.

Of Winkelried we know nothing but his heroic act; and of his words none have come down to us but the last and greatest. But such a death and such words, uniting in that awful hour, in so touching a manner, paternal affection and ardent patriotism, are sufficient to secure to him a glorious immortality. A rude monument over the fountain of Stantz, the chief town of the canton of Unterwalden, has been consecrated to the memory of the man and of the deed. His coat of mail was for a long time preserved in the Arsenal, and upon the wayside from Ennemoot, a lonely and mouldering chapel, hoary with age, known as Winkelried's Chapel, stood until the beginning of the present century. It was a simple and venerable monument; but the wars which rolled over Switzerland, in common with all the rest of Europe, at the commencement of the present century, swept away this and many other relics of the achievements of the grandest generation of a patriotic people.

Winkelried ranks next to William Tell in the estimation of the Swiss. His exploit has been celebrated in many a homely ballad, and his memory is enshrined in the hearts of the people. One of our poets (James Montgomery, in his "Wanderer in Switzerland"), has paid a tribute to the departed hero in strains too stirring to be withheld:—

"'Make way for liberty!'—he cried;
Made way for liberty, and died!

"It must not be: this day, this hour,
Annihilates the oppressor's power!
All Switzerland is in the field,
She will not fly, she cannot yield—
She must not fall; her better fate
Here gives her an immortal date.
Few were the numbers she could boast;
But every freeman was a host,
And felt as though himself were he,
On whose sole arm hung victory.

"It did depend on one indeed;
Behold him—Arnold Winkelried
There sounds not to the trump of fame,
The echo of a nobler name.
Unmarked he stood amid the throng,
In rumination deep and long,
Till you might see with sudden grace,
The very thought come o'er his face;
And by the motion of his form,
Anticipate the bursting storm;
And by the uplifting of his brow,
Tell where the bolt would strike, and how.

"But 'twas no sooner thought than done!
The field was in a moment won:—
'Make way for liberty!'—he cried,
Then ran, with arms extended wide,

As if his dearest friends to clasp;
Ten spears he swept within his grasp;
'Make way for liberty!'—he cried,
Their keen points met from side to side;
He bowed amongst them like a tree,
And thus made way for liberty.

"Swift to the breach his comrades fly;
'Make way for liberty!'—they cry,
And through the Austrian phalanx dart,
As rushed the spears through Arnold's heart;
While instantaneous as his fall,
Rout, ruin, panic, scattered all:
An earthquake could not overthrow
A city with a surer blow.

"Thus Switzerland again was free;
Thus death made way for liberty!"

STATISTICS OF THE MANUFACTURES OF PARIS.

M. Blanqui, the able exponent and defender of the principles of free trade in France, calculates the value of the annual produce of Parisian industry at from £55,534,000 to £55,573,000. There are 325 principal branches of trade, and 64,000 masters, each of whom pay for what is termed a patent—that is, a license to carry on any particular trade, the price of which license varies according to the nature of the business or profession of the holder. There are also 342,530 workpeople, of whom 204,000 are men, 112,000 are women, and 26,530 children.

Paris is divided into 12 districts, termed *arrondissements*. The first arrondissement, in which the carriage trade is carried on, produces to the value of £4,046,000. The second arrondissement produces £7,021,000. The third employs 32,000 workmen, producing £5,038,000. The fourth gives employment to 21,000 workmen, producing £2,856,000. The fifth employs 51,000 people, producing £6,704,000. The sixth employs 63,000 workmen, and produces £9,322,000. This last arrondissement is especially Parisian. In it the artisan is, as it were, a magician, a Proteus: he excels in every branch. The raw materials used are of little value; it is the skill and genius of the Parisian artisan which gives a money value to materials intrinsically worthless. It is here that Paris goods are manufactured—fancy turnery, buttons, brushes, canes, umbrellas, jewellery, plated work, lace, and a hundred thousand marvels of ingenuity known and sought after in every part of the world. The production of colours for painters forms a very successful branch of Parisian industry, as does also the manufacture of artificial pearls. They are made of small globules of glass, filled with a substance called "oriental essence," but which is, in fact, but the scales of a small fresh-water fish, softened in ammoniacal water.

The seventh arrondissement gives employment to 41,000 workmen, and produces £6,069,000. It is very nearly related in character to the sixth. The eighth employs 50,000 workmen, and produces £5,236,000. This is the quarter for cabinet-making, paper-hanging, carpenter's work, and brewing. The ninth numbers 15,000 workmen, producing £2,182,000. The tenth employs 20,000 workmen, producing £2,697,000. The eleventh numbers 19,000 workmen, producing £2,499,000. Lastly, the twelfth, which is the great quarter for tanners, rag merchants, and brewers, numbers 70,000 workmen, producing £3,967,000. Amongst the special branches of industry noticed by M. Blanqui, are those of bronze work, unrivalled throughout the world, and producing £793,000; hat making, producing £555,000: glove making, producing £635,000. In artistic bronzes, silver work, filigree, and imitation jewellery, the Parisians are considered extremely clever workmen, and many thousands are employed in the production of these luxurious adjuncts of civilisation. The clocks, vases, chandeliers, cups, lustres, and so forth, of Paris, are deservedly celebrated, and may be found in every capital of Europe. Paris, despite its gaieties and frivolities, is much more of a manufacturing city than London. The wages vary amongst this immense population of workpeople from 2d. per diem, to from 28s. to 32s. per week. The average wages is 3s. 2d. a day for a man, and 1s. 4½d. for a woman. In the manufacture of fancy soaps great numbers of persons find employment. In one establishment in Paris alone there are used annually, for the scenting of toilet soaps, 80,000 lbs. of orange petals, 54,000 lbs. of rose leaves, 32,000 lbs. of jessamine flowers, 32,000 lbs. of violets, 20,000 lbs. of tubereuse, 16,000 lbs. of mignionette, and 16,000 lbs. of lilac.

NEST-BUILDING FISHES.

The *Gasterosteus*, or Stickleback, as it is more commonly called, is a very small but very plentiful fish, having its back and belly furnished with prickly bones, somewhat like thorns, and a sort of scaly cuirass extending along its body. What is most remarkable about it, however, is the great attention paid by the male to its offspring. It constructs a nest for them with as much care, though of course not so much ingennity, as a bird, and for this purpose carries small pieces of plants in its mouth, often from a great distance. All these pieces, together with minute particles of sand, it collects into one spot, and, having allowed them to settle at the bottom, it smears them over with a sort of glutinous exertion, which attaches them firmly. It then presses them together by a peculiar movement of the body, frequently striking the mass with its pectoral fins, as if to ascertain whether it has acquired the necessary consistency.

Singularly enough, each fish labours alone, and guards its work with the most watchful jealousy. Murderous conflicts sometimes take place when two or more of the little architects dispute the possession of any of the necessary materials. Without any other instrument than its mouth, each glues together pieces of weeds, of old roots, of sedge, and placing them lengthwise, generally so as to form a cavity somewhat resembling a lady's muff in shape, the roof being arched over with the utmost care, and the glutinous mass of which we have before spoken, always forming the foundation. The entrance is always from above, and the utmost care is taken to make it as smooth and as even as possible, so that the owner may glide in without any difficulty.

The fact that it is the male which does all this, makes it one of the greatest anomalies in natural history. Amongst the lower animals it is the female which foresees all the wants of the young, and provides them with food and shelter. But the male stickleback not only fits up the dwelling-place, but during the breeding season nature clothes him in the gayest colours, in which he displays himself at the entrance of the nest, to attract the females to deposit their eggs in so commodious a mansion. The belly, instead of the ordinary white colour, assumes a roseate hue, and the grey of the back gives place to blue, or a sort of silvery green.

As soon as the fish has finished its nest, and put on this brilliant livery, it goes in search of the females which are about to spawn, to induce them to follow him, and deposit their eggs in the receptacle which he has prepared with so much care. He shows them the nest, he enlarges the entrance, and, in fact, pushes them in. As soon as one has left, he goes in search of others, and the quantity of eggs which thus accumulate at last becomes very great. But his task is not finished. He has still to watch and defend them until they are hatched, against the attacks of other fishes, and even of the females, which, strange to say, are extremely fond of feeding on spawn. Having carefully tended the eggs, when the young come forth, he supplies them with food, and defends them from violence with as much assiduity as that of a hen towards her chickens, until they are able to provide for themselves.

A French naturalist, M. Coste, some time ago gave great attention to the habits of the stickleback. He has watched the whole process of the construction of the nest, the laying of the eggs by the female, and the care taken of them by the male. He has seen him supply the young with food, and defend them, and lead them out when they have become sufficiently hardy to leave the nest, that they may become acquainted with the surrounding localities; and, in short, has discovered a thousand striking analogies between its habits and those of birds. Some of the details with which he has furnished us are certainly very curious. "The stickleback," says he, "has the foresight to cover the nest heavily with sand, to prevent its being swept away by the waters; and they glue together the materials of which the nest itself is composed, by means of the mucous excretion which exudes from their bodies. To make sure that all parts of the nest are united with sufficient solidity, the fish suspends himself in the water immediately above it, with his head downwards, and makes rapid vibrations with his pectoral fins and his tail. By this means any parts of his dwelling which are not properly constructed at once become loose and detached, and he instantly darts down and repairs the defect. During an entire month he is the sole

guardian of the eggs which the females lay within, and he has to defend them, not only against the attacks of other fishes, but against the ferocious and unnatural appetites of the parents themselves. He removes the stones which accumulate at the mouth of the nest, he enlarges the opening, and by the singular vibrations of his tail and fins he changes and purifies the water in the neighbourhood; and, in short, he never relaxes his tender care of the young until they are fully able to provide for themselves."

was led to a closer observation. The peculiar black appearance of the place which the fishes had left first attracted his particular attention. Examining more closely, a nest was discovered, in which were moving a number of little tadpoles. These were at first taken for the tadpoles of frogs, and, to test the attachment of the old fishes to the spot, Professor A. took some pains to experiment upon them. Pausing for a few minutes, the two fishes returned slowly and cautiously, looking anxiously towards the nest to see if it had been disturbed. They approached to within



NEST OF THE GASTEROSTEUS, OR STICKLEBACK.

At the meeting of the American Association at New Haven, Professor Agassiz made an interesting communication on the "care which certain fishes take of their young." After referring to the general disbelief with which stories of fishes taking care of their young have been received, he stated that recently, while engaged in collecting insects along the shores of Lake Sebago, in Maine, he was led to observe the actions of a couple of cat-fish, which at his approach left the shore suddenly and returned to deeper water. This movement being several times repeated, he

six or eight feet of where he stood. They were evidently not in search of food, and he became convinced that they were seeking the protection of the young. Large stones thrown repeatedly into the middle of the nest, after these fishes had returned to it, only served to frighten them away for a brief period; they invariably returned to the spot within ten or fifteen minutes afterwards. This was repeated for the fourth and fifth times, with the same result. The nest was in a depression among the water plants.

THE YOUNG SAILOR PUZZLED.

And well he may be, in presence of the experienced old pilot, who is examining him! Well may he be disconcerted when, after his first voyage, he is questioned about "mainsails" and "topmasts," "flying jibs" and "spankir booms." "When a mere tyro is examined by a professor," says Rabelais, "it is like running down a young hare with an experienced hound." Such an examination is enough to disconcert the boldest. There are few of us who have not, at some period of our lives, stood in just the same predicament as the young sailor-boy. The commoner of St. Boniface, who has crammed for his "little go," stands abashed and puzzled at some simple question from his begowned and reverend examiner. The medical student, who has worked hard at home, and been punctual at "lectures" for at least the six months previous to his "going up," blushes and stammers when some old practitioner—an Abernethy, for instance—asks him what he would do in such and such a case of dislocation, or what he would prescribe in such and such a fever! The military cadet, who is known as the boldest, wickedest, cleverest lad in the college, all at once loses courage when some rough old general propounds a point of engineering tactics in a manner different to what it is commonly taught in the books. The best scholar in the whole school, the top of the class and the pet of the master, casts down his eyes when, at some Christmas show-day, a quiet-looking man in spectacles inquires of him respecting some Greek root. And thus it is with all of us. Pride ourselves as we will on our knowledge and experience, we are certain to find some one who knows better than we. And it is just possible—*just* possible, we repeat—that even the examiners themselves might be puzzled were they submitted to a like ordeal. Just possible that the old pilot, who knows every rope of the ship, can talk learnedly of her "lines" and "points," and is capable of holding forth for an hour at a time on all matters of seamanship, would pause if questioned about affairs not pertaining to his profession; nay, not only possible, but very likely indeed. This brings us back to our picture.

It appears that a number of youths have come before an old pilot, to be examined by him as to their proficiency in navigation. On the one side are the examiners, and on the other the candidates. If the aspect of the first is not quite so magisterial as it might be, the puzzled look of the young sailor under trial, with finger on lip and half-closed eyes, is a sufficient evidence of the nature of the examination. And the varied expressions of the lads: one attempting to prompt his friend in a whisper, another making inquiry of his fellow as to the matter under discussion, and a third, in whose whole person—face, hat, body, arms, legs, feet,—is shown but one feeling of profound attention;—is not the whole a triumph of artistic composition? The benevolent look of the questioner, in which just a shade of raillery peeps out, is well contrasted with that of a sitting figure, who appears to view the proceedings with considerable interest—just as a father might, were his own son standing in the place of the young sailor. The



(From a Painting by R. Jordan.)

globe and maps, the inkstand and books, the *impromptu* table—on which an old sail does duty for cloth—the rough seats, the homely walls, and the timber roof of the apartment, are all in character. Upon the success of the manœuvre concerning which the pilot is questioning the youthful group, may depend, some day, perhaps, the lives of themselves and others; and who can tell how many tender feelings may be bound up with the welfare of those lads? Out upon the wild sea, they are unknown or forgotten by the world. They go and come upon their adventurous voyages, and are only so many carriers of merchandise from land to land. They grow up to be men, and pursue the same career, and we take no heed of them ashore. They are paid their wages, and they spend them—the *how* we seldom inquire into—and go to sea again. But as they sail across the broad Atlantic, or are idle, ice-locked for months together in the Polar seas, it may be that there are hearts at home which fondly beat for the rough, uncared-for sailor. Society owes him no small debt of gratitude and duty.

KINEMATICS; OR, THE TRANSFORMATION OF MOTION.

That part of the science of mechanics which relates to the means by which the direction and velocity of *one given motion* may be transformed into those of another, is called, by eminent writers on the subject, "Kinematics," from the Greek verb *kineo*—to put in motion. The first work in which any attempt was made to treat the subject systematically, was the *Theatrum Machinarum* of Leupold, published in 1724. The next important step was made by Monge, who delivered lectures on the subject at the *Polytechnic School, in Paris*, in 1794. The system adopted by this celebrated geometer, was partially modified and published by MM. Lanz and Betancourt in 1808, under the title of "An Essay on the Composition of Machines." Ampère pointed out the proper method which should be pursued in treating of this subject, in his "Essay on the Philosophy of the Sciences," published in 1834. Lectures on Mechanism, including the doctrine of Kinematics, were for the first time delivered in the University of Cambridge, in 1837, by Robert Willis, M.A., F.R.S., Jacksonian Professor of Natural and Experimental Philosophy. His ingenious and original views on this subject have since been published in his work entitled, "Principles of Mechanism," London, 1841.

As the last-mentioned author's treatise might be considered too abstruse for non-mathematical readers, we shall confine our remarks and illustrations on this subject chiefly to the system of MM. Lanz and Betancourt. According to their views, the motions of the parts of machines are either *Rectilinear*, *Circular*, or *Curvilinear*; that is, *in a straight line*, *in a circle*, or *in a curve*; and each of these may be *continuous* or *alternate* in direction—that is, uniform or reciprocating. The six motions arising from this combination admit of being again combined two and two, in twenty-one different ways, each motion being supposed also to be combined with itself. The object of every simple machine being to counter-change or communicate these motions, the following systematic table will include them all.

TABLE OF THE TRANSFORMATION OF MOTIONS.

I.—*Continuous Rectilinear Motion* may be changed into
1. Continuous Rectilinear Motion.
2. Alternate Rectilinear Motion.
3. Continuous Circular Motion.
4. Alternate Circular Motion.
5. Continuous Curvilinear Motion.
6. Alternate Curvilinear Motion.

II.—*Continuous Circular Motion* may be changed into
7. Alternate Rectilinear Motion.
8. Continuous Circular Motion.
9. Alternate Circular Motion.
10. Continuous Curvilinear Motion.
11. Alternate Curvilinear Motion.

III.—*Continuous Curvilinear Motion* may be changed into
12. Alternate Rectilinear Motion.
13. Alternate Circular Motion.
14. Continuous Curvilinear Motion.
15. Alternate Curvilinear Motion.

IV.—*Alternate Rectilinear Motion* may be changed into
16. Alternate Rectilinear Motion.
17. Alternate Circular Motion.
18. Alternate Curvilinear Motion.

V.—*Alternate Circular Motion* may be changed into
19. Alternate Circular Motion.
20. Alternate Curvilinear Motion.

VI.—*Alternate Curvilinear Motion* may be changed into
21. Alternate Curvilinear Motion.

Each of these combinations has also its converse. Thus, in No IV., continuous rectilinear motion may be changed into alternate circular motion; and, conversely, alternate circular motion may be changed into continuous rectilinear motion; so that the whole number of possible combinations is thirty-six, rejecting duplicates. Of many of these twenty-one combinations, however, no direct solution can be given; hence, the authors above mentioned have confined their elementary combinations to twelve distinct heads. Of these, we shall give the most important and useful

To change one continuous rectilinear motion into another.—This problem is effected by passing a cord over a single fixed pulley, as in the motion of window-blinds, or by the application of any system of cords and pulleys employed to alter the direction and velocity of a given rectilinear motion, as in manœuvring the sails of vessels. In this problem may be included the apparatus employed for drawing a series of straight lines parallel to a given straight line, and known by the name of *parallel rulers*. Varieties of these are represented in figures 1, 2, and 3.

Fig. 1.

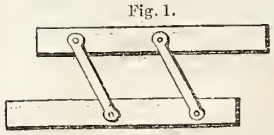


Fig. 2.

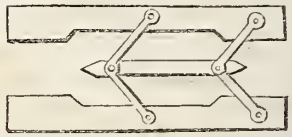
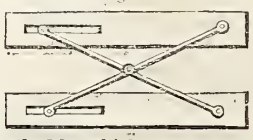
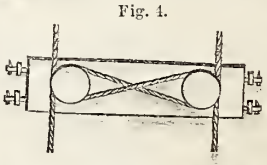


Fig. 3.



The ingenious method by which perfect parallelism and equable tension are preserved in the spinning of cotton and other threads is represented in Fig. 4.; where a frame is mounted on four small wheels, carrying two pulleys, whose axles are fixed on it so as to work horizontally; and two cords are placed in a parallel position, in the direction in which the frame is to move, and pass round the two pulleys in the form of the letter Z; so that, by pushing the frame or drawing it back, its parallelism is secured.

Fig. 4.



The inclined plane may also be used to produce rectilinear motion in a direction at right angles to its base, by securing a beam in a vertical position between four or more guide-rollers, so that it is free to move vertically, but not laterally, and applying a force at the back of the plane—considered then as a wedge—to urge it in the direction of its base; this motion will then cause the beam to rise through a height proportional to the space passed over in the horizontal motion.

To change a continuous rectilineal motion into a continuous circular motion, or conversely.—This may be effected by a rack, or straight indented bar, working on a toothed wheel, the continuous rectilineal motion of the former producing the continuous circular motion of the latter, or conversely. A strap passing round a wheel, and turning it by its friction on the surface or groove in which it works, will attain the same end, when the resistance is not too great. In cases where the resistance is too great, a chain and rag-wheel, or a rod with pins and wheel with notches, may be used. These motions are exemplified in figures 5, 6, and 7.

Fig. 5.

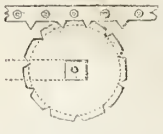


Fig. 6.

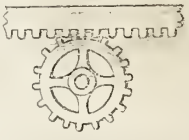


Fig. 7.



The wheel and axle, the capstan, the jack, the screw and nut, are all solutions of the reciprocal of this problem. The differential screw, represented in Fig. 8, is a cylinder divided into three parts, of which the two extreme parts carry two equal screws, and the middle part one whose thread differs from that of the other two by a very small quantity. The former turn in two fixed nuts, and consequently move by a quantity equal to their thread at every turn of the winch. To the middle screw is attached a moveable nut, having an arm which slides in a groove parallel to the axis of the cylinder, so that at every turn of the winch, this nut moves forward by a quantity equal to the difference between the threads of the middle screw and the extreme screws.

The differential wheel and axle, represented in Fig. 9, is constructed on the same principle, and exhibits a transformation of motion similar to the preceding, but perpendicular to the axis of the machine. The weight is raised at every turn of the winch, by a quantity equal to half the difference of the radii of the two axles.

Fig. 8.

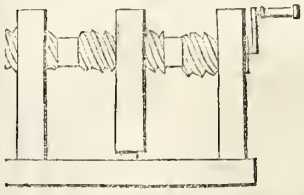
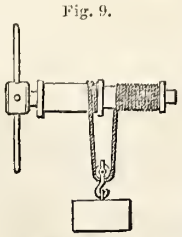
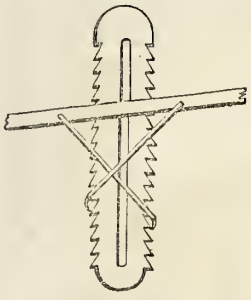


Fig. 9.



To change a continued rectilinear motion into an alternate circular one, and conversely.—This problem is solved by a rack and lever working into its teeth, or a rack and toothed sector, in the manner adopted by Watt in the first specification of his double-acting steam-engine, for producing the reciprocating motion of the working beam. A mode of performing the converse of this problem is represented in Fig. 10, where a double rack, moveable in a vertical direction, is supported by two small hooked levers, which cross each other, and by the fixed horizontal axis of a large lever moveable round it, which traverses a longitudinal groove in the double rack, produces the transformation. The two small hooked levers are moveable round their centres, which are attached to the great lever. By giving to the latter an alternate circular motion, the bar rises and takes a continuous rectilinear motion.

Fig. 10.



The actual transformation used in machinery consists in transforming the alternate circular motion into a continued circular motion, by means of a connecting-rod and crank; and the latter into a rectilineal motion, by means of a rack or a cord winding on an axle.

To change a continuous circular motion into an alternate rectilinear one, and conversely.—This problem is solved by the following apparatus, represented in Fig. 11. A wheel, worked by a winch, and turning on its centre, carries a pin which slides in the groove of a horizontal bar, placed in the form of the letter T on a beam moving vertically between guides, whose ends are seen in the figure. As the wheel revolves, the pin moves backward and forward in the groove of the bar, and raises and depresses the beam through the guides in the same vertical direction.

Another solution is represented in Fig. 12. A wheel, having wipers, or curved teeth, placed on its circumference, is placed in connection with a stamper, or vertical beam, furnished with a projecting shoulder or pin; and, as the wheel revolves, the stamper is lifted by each wiper, and falls when disengaged from it; it is then lifted by the next wiper—and so on. This apparatus, as the figure indicates, is employed for the purpose of pounding hard materials.

Fig. 11.

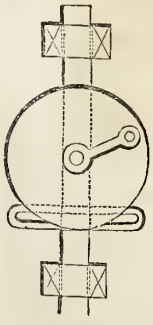
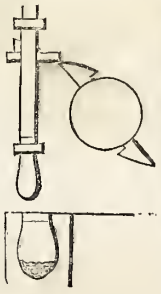
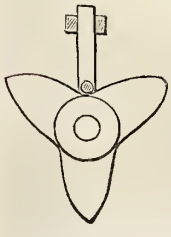


Fig. 12.



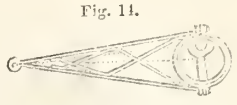
The curve called *cardioide* furnishes a third solution. If, for example, a vertical bar, kept in its position by guides, is required to rise and fall three times alternately for every revolution in a continuous circular motion, the axle or wheel is provided with three great symmetrical cams, to answer the required purpose; as represented in Fig 13.

Fig. 13.



Instead of the cardioide, circular eccentrics are used for the same end, as represented in Fig. 14. Within a circular metallic ring is fitted a circular metallic plate, capable of turning freely within the ring, and revolving not on its centre, but on a point at some distance from it. The ring is connected by a shaft and joint, with a rod moving in guides. The eccentric motion of the plate causes the ring to move alternately in opposite directions, and through a space equal to twice the distance of the axis from the common centre of the ring or circular plate; this communicates, through the shaft and joint, an alternate rectilinear motion to the rod which works in the guides.

Fig. 14.



An eccentric may be considered as a system of connecting-rod and crank, in which the crank-arm is variable; or, more generally, a curve which revolves with an axle, without being concentric to that axle, and producing the transformation of continuous circular motion into alternate rectilinear motion.

The cardioide of Vaucanson, represented in Fig. 15, is a symmetrical eccentric, by means of which the uniform motion of a horizontal axle produces a similar alternate one in a vertical rod placed in the plane of the revolving axle.

Connecting-rods and cranks are also often used for the transformation of continuous circular motion into alternate rectilinear, as in Fig. 16.

Fig. 15.

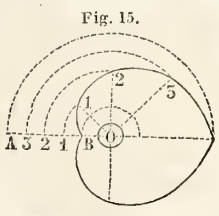


Fig. 16.



There is an elegant solution of this problem founded on a geometrical property of the circle, represented in Figs. 17 and 18; where the former is the front view, and the latter the side view. A small toothed wheel, which is put in motion by a winch, works in the interior of an annular wheel of double its diameter. While its centre is describing a circle round the centre of the large wheel, the point of its circumference which was highest, and in the vertical line, at the beginning of the motion, remains always in this vertical line, rising and falling alternately along the diameter of the great wheel. This is called White's parallel motion.

Fig. 17.

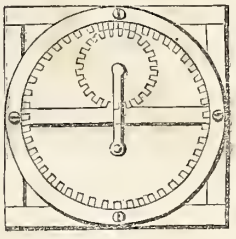


Fig. 18.

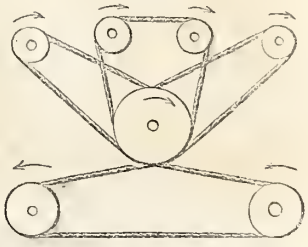


To change one continuous circular motion into another.—The mill-geering represented in Fig. 19, the straps and the chains which transmit the motion of the principal shaft of a machine to the axles and secondary wheels, present frequent examples of this transformation.

Fig. 19.

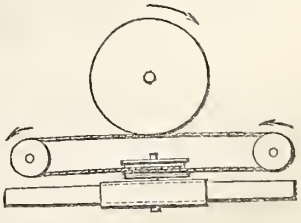


Fig. 20.



An endless cord passed round pulleys placed at variable distances in the same plane, and which communicate in the direction indicated by the arrows, represented in Fig. 20, the motion which one of them receives from any driver, is another example.

Fig. 21.



The means employed to transmit, with an endless cord, the motion of the driver in a plane perpendicular to that in which it moves, is represented in Fig. 21.

(To be continued.)

THE COURSE OF HUMAN LIFE.

BY M. BENDEMANN.



Two guardian angels has brought another human being on earth. The infant is in the arms of the nurse, and the mother, with clasped hands, is thanking God that her son has now a sister. A few years pass by, and they learn their earliest words. Hand in hand they enter eagerly into all the joys and sorrows of their age. Their first teachings, and freshest pleasures are all in common. At length the day arrives on which it has been decreed by the unbending laws of society that their paths must separate for ever:—

Years have passed, and left their trace
Of graver care and deeper thought,
And unto him the calm, cold face
Of manhood, and to her the grace
Of woman's pensive beauty brought."

Before the brother lies the stormy sea of life, with its intoxicating freedom, and too often dearly-bought experience. He may drink deeply of its pleasures, but he can never escape its duties. He may be called upon to rule, to legislate, to plead, to fight; but



let the responsibility be what it will, he has need of a clear head and a stout heart, to listen with patient docility, and to think with persevering faithfulness—to avoid the too common error of believing that his mission is either to renew the world, or to invent a new mode of life. He has to take it as he finds it, and the use of the experience and wisdom of the aged is to teach him how he may best adapt himself to the circumstances around him. And while he purifies his intellect by study, he must not forget to strengthen his body by exercise. Life is a great *melée*, in which every man is for himself, and God or all. The keen eye and the strong arm win the laurels. A robust constitution is an indispensable requisite to success. He who seeks to win fame on the battle-field, must have a hand in which cold steel will not tremble; and whether on tented field or in halls of council, "that he can toil wonderfully" is one of the best things that can be said of any man, and it can never be said of him whose frame is light and fragile.

But what of her who was the companion of his careless boy-

hood? While he has gone out to buffet the billows of worldly strife and turmoil, her life has been a course of unobtrusive goodness, occupied in those minor duties which take up the lives of so many women, which, as they require no effort, cause no pang, and give no triumph. Our engraving shows her rolling up the bleached linen, or carrying their dinner to the reapers, and, doubtless, envying the joys and duties of the young mother at her side. The hour of labour is past. She has gone into the fields at eventide with her companion. They are thinking—and doubtless talking, too, —of the "nearer and dearer one still than all other," to whom her own and her mother's hopes have so long been pointing. He, behind her, returning with his dog and his falcon from the chase, and as he passes he looks after her. The wishes of their parents will doubtless speedily be fulfilled, and crowned with "the rose, the flower of love," they will enter with the music and the dance upon that life which their fathers are closing in labour and sorrow. Not one link drops in the great chain of human existence, but there is another directly inserted to fill its place. At the side of every tomb there is a cradle. For him who does not seek earnestly to learn what part he fills in the great plans of the Almighty, all is disappointment; but for him who looks upon himself as but a spark of the great celestial fire, the present and the future are full of delightful assurance.

Our engravings are taken from the paintings by Bendemann, which adorn the Throne Room of the Royal Palace at Dresden. The ornaments, however, do not exist in the originals. All Bendemann's works are not less remarkable for their simplicity and truthfulness than for the depth and soundness of their philosophy.

A CARD.

We confess to feeling a strong interest in the condition, intellectual, moral, and social, of the working classes. We have done so from our very childhood. It is either a part of our nature, or a very early graft upon it. We rejoice in their joys, sorrow over their sorrows, and exult in every fresh proof of their welfare, progress, and improvement. It was, therefore, with no small degree of pleasure and satisfaction that we looked upon the following card, which was put into our hand only yesterday:—

"Kettlewell and Harrison, Althorpe,

Beg to inform their friends, and agriculturists generally, that they have recently purchased

A PORTABLE STEAM THRASHING MACHINE,

with which they will be able to perform their work much more expeditiously, and in a very superior manner. They have also an excellent

HORSE-POWER MACHINE.

K. and H. beg to say that their very best attention will be given to those who may favour them with their commands, and no exertion will be spared to give the most entire satisfaction.

January 1*st*, 1852."

"Is this the card you spoke of?" we can fancy some superficial or apathetic people exclaiming. "Well, what of it?" Yes, it is the card we spoke of, and we think much of it. We look upon it as "a great fact," almost in itself sufficient to stamp the year 1852 with the character of the *annus mirabilis*, which so many persons have been conferring upon it by anticipation. Let us state the grounds of this opinion, and of the pleasure which we derive from it.

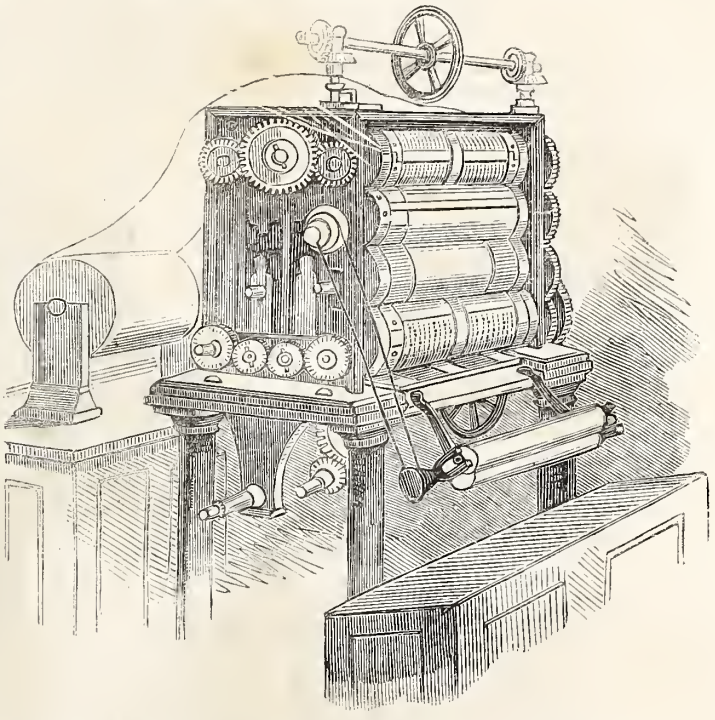
1. Men yet alive, and, indeed, hardly of middle age, can recollect the absolute horror and rage with which the working classes, both in the manufacturing and agricultural districts, regarded the introduction of machinery into their several trades and callings. They considered steam-power, especially, to be a terrible rival, destined to supersede the human energies; and, utterly ignorant of the new ramifications of labour and employment which it would develop, rushed blindly, and with mad ferocity, into outrages which gave us, at one time, "a black assize" in many a county. But all this is over. Education has been at work. Thought and reflection have come to the rescue, and, by their assistance, common sense has ascended its throne in the minds of the millions from which it was so long excluded by the usurper—Ignorance. We appeal, as a mighty proof of this position, to the foregoing Card. Kettlewell and Harrison, by whom it is issued, are no capitalists. They are no mechanists. They are not even farmers, anxious to repay themselves for their outlay on such improvements by extending their sphere of action to their less enterprising or less wealthy neighbours. They are, on the contrary, two hard-working, industrious, agricultural labourers, living at Althorpe, in the Isle of Axholme, a district of England, which is a *terra incognita* to most of our countrymen, and of which we intend to write at large some day. Is it not, then, we would ask, most satisfactory to hear of such things being done and undertaken by two labouring men, in a secluded village on the banks of the Trent, in the remotest corner of Lincolnshire? It shows that, like the dropping of water, education has been silently going on, and making its way even in quarters where we least expected to find it producing such substantial fruits. *Eureka.* This is something to talk of and something to boast of, and we rejoice to tell it. There is something more delightful to us in this page, from the simple annals of the poor, than in all the startling facts which pour upon us in daily accumulation from the big, bustling, grasping, struggling, fighting world, to which so many give their excited and uninterrupted attention. We think more of Kettlewell and Harrison's Card than of Napoleon's proclamations, and infinitely more of their Portable Steam-Thrashing Machine than of his blood-stained *coup d'etat.*

2. And, farther, look at the thing in another point of view. What habits of industry and steadiness does the ability to launch into a speculation betoken on the part of two agricultural labourers, both young men, as yet under the age of thirty. This is not the least pleasing feature of the matter. It tells of a moral improvement, as well as an intellectual one, among the workers in the rural districts, which many would have doubted, some denied. There is no room for idleness, no room for drinking, in a case like this. The public-house can have had no charms for such men as these. Day by day they must have added to their little savings—little at first, until the store grew to the point which it has now reached. What was the glory of Waterloo to the honest pride with which these poor fellows, after calculating the cost and the amount of their hoard, gave the order for a "Steam Thrashing Machine." What is the pleasure of writing, "We, Nicholas or Francis," to some exterminating decree, compared with the thrilling delight with which these sons of toil would read their names in print, in large letters, KETTLEWELL and HARRISON.

It is with no ordinary feeling of gratification that we help to embalm and immortalize them in these pages. Go on and prosper. George Stephenson had a less beginning, and so had Joseph Paxton. The world is before you. Press forward. And to your fellow-labourers in that district,—we are told, proverbially an industrious race—we say, "Go, and do ye likewise." We glory in this one card. What a day it will be for working-classes when the game shall be played by a whole pack of them. And, verily, unless the signs of the times, unless bright hope deceive us, it is coming. The dawn is in the eastern sky. Lighter and lighter grows the morn. The sun cannot go back upon the dial. We press on towards meridian brightness. It may not be here as soon as some enthusiasts anticipate. But the tendency is in the right direction. The wave may even recede now and then, but it will only be to advance higher and higher. We are believers in man's capabilities, are certain of his improvement since our eyes were first upon his course, and have an unflinching faith in the future of his progress. His moral, social, and intellectual advance is to be wrought out through much toil, many labours, and bitter disappointments. But, nevertheless, all things are working for it. The signs and symptoms of success multiply around us. The standard of human excellence is constantly increased. The high-water mark of yesterday is the low-water mark of to-day. The level rises. *Festina lente.* Let who will say that the good work is slow; we answer that, at all events, it is sure.

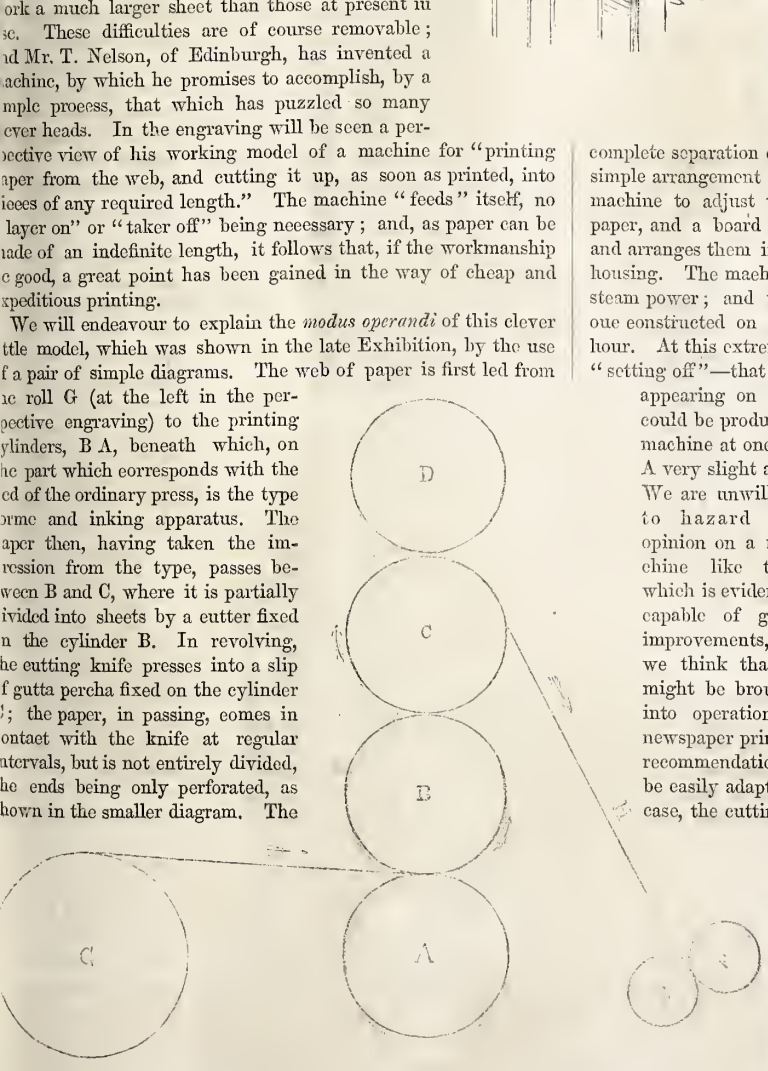
We have yet another word to say in connexion with our "Card." The Great Exhibition is bearing its fruits. The woodwork for the steam-thrashing machine of which we have been speaking, was executed by an ingenious mechanic of Althorpe, named Kelsey. He came up, with others last year, to see the show, and crowded a whole apprenticeship into the two days which he spent in the agricultural implement department, and then returned home again with, as they would say on the other side of the Atlantic, "a cargo of notions," which have inspired him for life. Doubtless, the same happy result has been produced in many other quarters. The Exhibition was a great schoolmaster, with many scholars. We love even to talk of such things. It delights us to be able, if we may so speak, to report progress of PROGRESS.

WORKING MODEL OF A NEW PRINTING MACHINE.



newspaper printing, as hitherto adopted by the eat metropolitan establishments, the size of the oadsheet has been restricted by three very serious uses: the difficulty of making large sheets of per; the still greater difficulty of providing maines adapted to print an extremely large sheet; d the present state of the law, which does not low a newspaper to be printed on a sheet containing ore than a certain number of square inches, without ing charged with an extra stamp duty. The first of ese difficulties has been successfully overcome, and per can be made of almost any size; in fact, the essrs. Spicer exhibited in the late Exhibition a ect of paper 46 inches wide and 7,560 feet in ngth! The second difficulty has arisen from the ct of an extremely large sheet being somewhat manageable in the machine, in consequence of its ving to be "laid on" and "taken off" by hand. hese terms will be readily understood by those who ve seen a sheet of paper printed. And so it has ppened that, notwithstanding the legal impedient—which, it is expected, will soon be removed—d besides the improvements made in printing achines, it has hitherto been found impossible to ork a much larger sheet than those at present in se. These difficulties are of course removable; d Mr. T. Nelson, of Edinburgh, has invented a achine, by which he promises to accomplish, by a mple process, that which has puzzled so many ever heads. In the engraving will be seen a perpective view of his working model of a machine for "printing aper from the web, and cutting it up, as soon as printed, into ieces of any required length." The machine "feeds" itself, no layer on" or "taker off" being necessary; and, as paper can be ade of an indefinite length, it follows that, if the workmanship e good, a great point has been gained in the way of cheap and xpeditious printing.

We will endeavour to explain the *modus operandi* of this clever ttle model, which was shown in the late Exhibition, by the use f a pair of simple diagrams. The web of paper is first led from



ic roll G (at the left in the perpective engraving) to the printing ylinders, B A, beneath which, on he part which corresponds with the ed of the ordinary press, is the type orme and inking apparatus. The aper then, having taken the imression from the type, passes beween B and C, where it is partially ivided into sheets by a cutter fixed n the cylinder B. In revolving, he cutting knife presses into a slip f gutta percha fixed on the cylinder ; the paper, in passing, comes in ontact with the knife at regular ntervals, but is not entirely divided, he ends being only perforated, as hown in the smaller diagram. The

eb of paper is then led upwards to the second pair of printing cynders, C D, where it is perfected—that is, printed on the other side. t then passes on to the flat band H, and is caught by the rollers F. On these are affixed a pair of cutting knives, by which the complete separation of the paper into sheets is finally effected. A simple arrangement of screws enables the superintendent of the machine to adjust the cutting-knives to any required length of paper, and a board with raised sides receives the printed sheets, and arranges them into regular piles, ready for drying and warehousing. The machine can of course be driven by either hand or steam power; and we believe that the proprietors have worked one constructed on this principle at the rate of 5,000 sheets an hour. At this extreme speed there is, however, danger of the type "setting off"—that is, the impression from the yet undried sheet appearing on its neighbour. The same amount of work could be produced by passing two webs of paper through the machine at one time; each to be printed on one side only. A very slight alteration of the machine would effect this.



We are unwilling to hazard an opinion on a machine like this, which is evidently capable of great improvements, but we think that it might be brought into operation in newspaper printing with some degree of success. Its great recommendation is its simplicity. It is patented, and might be easily adapted to print cotton cloths. Of course, in this case, the cutting-knives would be dispensed with.

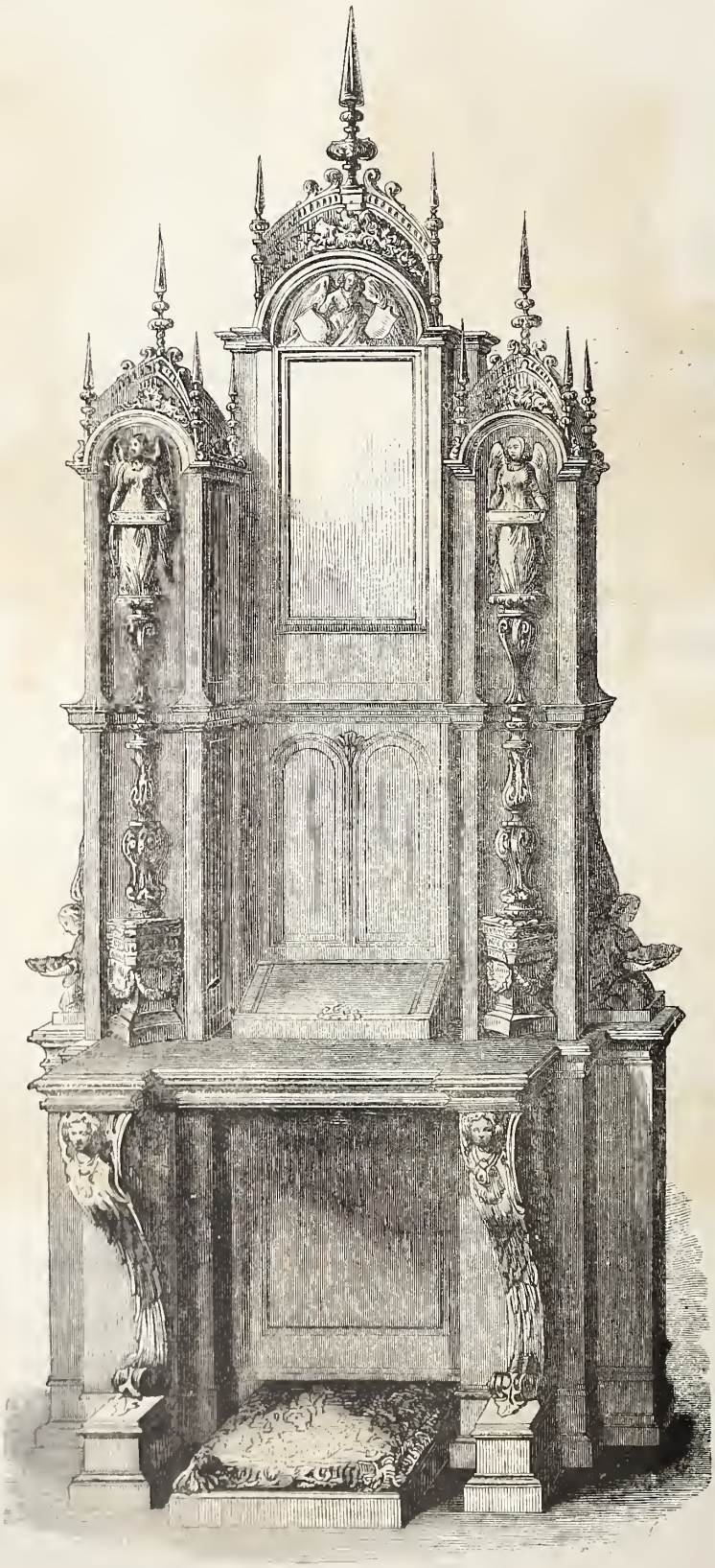
The great advances which have of late years been made in the education of the people, and the vast accession to the numbers of the "reading public," have caused a similar activity in the conductors of the public press. About 66 years ago the *Times* newspaper was a sheet not much larger than a single page of that paper now, with no leading article, and but half-a-dozen advertisements. The first steam-printing machine was used at the *Times* office. Everything has progressed with regard to printing. Well may the press be said to form a Fourth Estate, for its influence is more extensive and more powerful than that of any crowned monarch in the world.

THE INFLUENCE OF TASTE IN DOMESTIC APPLIANCES.

KARL LEISTLER'S AUSTRIAN FURNITURE.

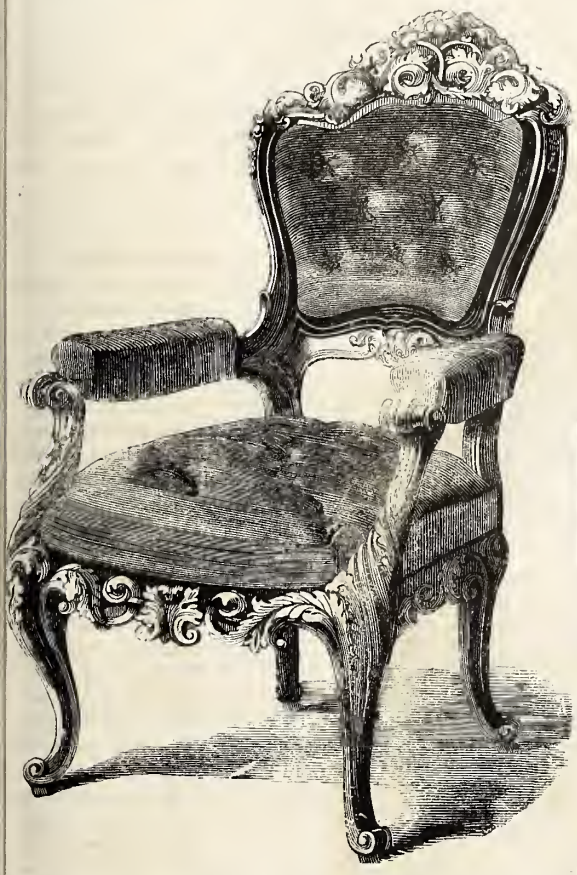
It is admitted on all hands that the cultivation of a correct taste in art is one important means of increasing the happiness and comfort of the people. The Great Exhibition was, perhaps, a medium superior to any that the world had hitherto witnessed whereby the art-knowledge of various minds was brought into visible contact. There the productions of nations of which we had previously but a traditionary or book knowledge, were placed side by side with the more finished specimens of a higher class of artists; and an opportunity was given to manufacturers to study the works of stranger hands which may possibly never occur again.

It is not alone in the higher and more ambitious efforts of the artist that a taste for beautiful forms and chaste ornamentation is apparent. In the humblest appliances of domestic life its manifestations are equally important. A love of graceful forms and beautiful colours is inherent in mankind. We may trace it in the rude efforts of the untutored savage, no less than in the gorgeous magnificence which marked the revival of classical art in the beginning of the 13th century—a style we recognise by the French term, *renaissance*. The visitor to the Crystal Palace may remember, amid the vast assemblage of objects presented to his gaze, some few which struck his fancy and impressed his mind by their grace of outline and fitness of purpose, while, on the other hand, he may have been pained to witness elaborate workmanship and profusion of ornament bestowed on others, which of themselves possessed little value—not value in the sense of money worth, but as regards their essential worth as evidences of high taste. Thus the man of judgment would see but little beauty in those highly-coloured and grotesquely patterned carpets hung from the girders, in which flowers and fruit luxuriated with *outré* animals and impossible geometrical combinations. In almost countless instances was this false taste exhibited. In one place it took the form of candelabra so overloaded with scroll-work and figures—young ladies bearing glass globes of light in their hands, delicate looking boys standing beneath loads of metal work which would have crushed an Atlas, and conglomerations of fruit, flowers, and parian—that the eye tired itself in attempting to convey an adequate idea to the mind. Again, this false taste crept slily into objects whose great size won for them a degree of unusual admiration and regard. In the Coalbrookdale Dome, for instance, the effect of John Bell's "Eagle Slayer" was lessened materially by the fact of the eagle itself appearing above, affixed to the roof, and with the arrow of the archer sticking in its heart. The poetry of the thing was taken away; there was nothing left to the imagination; and the spectator wondered that so piercing a look and so vigorous an arm was necessary to bring down the bird from so short a distance. In another place the correct eye was offended by the introduction of vivid colours in furniture and cabinet works as, for instance, the picture so inappropriately introduced in Fourdinois' carved cabinet—that noble specimen



GOTHIC CABINET IN ZEBRA WOOD, BY KARL LEISTLER AND SONS, VIENNA.

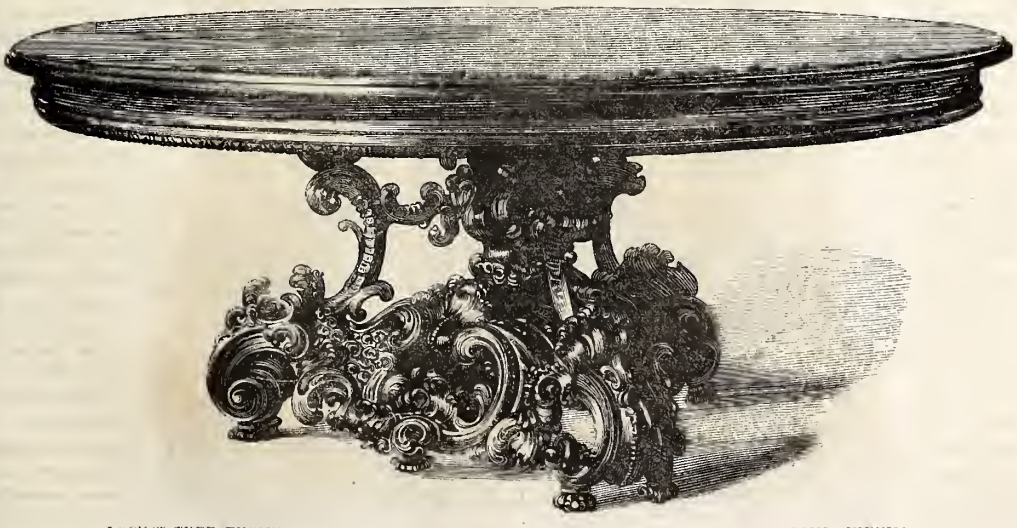
f skill which stood outside the Gobelin and Sevrès room. The iscriminating visitor could not fail to have remarked these and any other evidences of bad taste at the Great Exhibition; to y nothing of tables, chairs, pianos, and so forth, overloaded ith buhl and metallic ornament; mirrors which were made to





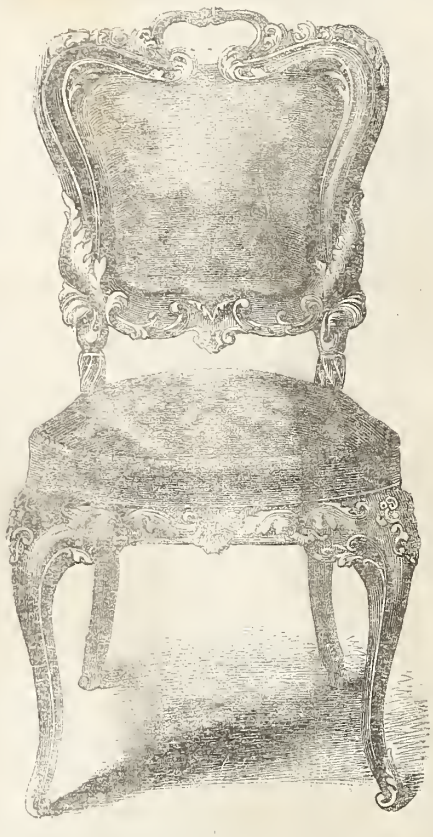
o service as toilet-tables; fire-grates in which the fire itself was ie least important part; bronzes and flower-stands, centre-pieces nd vases, porcelain and iron work, in which the superabundance f ornamentation—inappropriate, and therefore unnecessary,—ere more particularly observable.

To return, however, to the main question. Our taste, says urke, "is improved exactly as we improve our judgment; by xtending our knowledge, by a steady attention to our object, nd by frequent exercise. They who have not taken these methods, if their taste decides quickly, it is always uncertainly; and their quickness is owing to their presumption and rashness, and not to any sudden irradiation." How true is this sentence none who have had the slightest experience in the arts, or have turned their reading to proper account, will for a moment question. The love of ornament is inherent; but the power of distinguishing the beautiful from the mere gaudy, the true from the false, the valuable from the meretricious, is only to be acquired by study and perseverance. No man is of himself a good judge of pictures or statuary, though all men can understand that which appeals to the understanding, the feelings, or the passions, through the medium of the eye. The love of ornament—or, rather, the taste for the beautiful—is a necessity of our common nature; and if the universal want can be supplied with a d e



LOCUST-TREE FURNITURE, FROM THE MANUFACTORY OF CARL LEISTLER AND SONS, VIENNA.

regard to commercial success, by so much are the providers in advance of they who contribute merely to the luxuries of the wealthy and refined. In the early history of manufactures, mechanical fitness is the first object sought; but as society advances, it is found that the mere uses of a particular article are not sufficient to satisfy the restless impulses of either designer or purchaser. There must be superadded to the first requisite, fitness for the purposes of life, a degree of elegance which attracts the eye and conveys a pleasing impression to the mind.



The ancients were well aware of this yearning after the beautiful, and they therefore decorated their cities with statuary and imposing buildings, and placed within their houses and their temples paintings and other objects likely to prove attractive from their specialities of form or treatment. A feeling in favour of the purer enjoyments of the senses once awakened must necessarily have required new stimulants. The appetite growing keener for this intellectual food, the inventive powers of the mind were more and more taxed to produce objects which should satisfy the requirements of the many; and hence arose those arts which in after ages became the pride and glory of the past. Confined to no people or spot of earth, the taste for the beautiful in form and colour permeates every corner of the habitable globe; and thus the visitor to the Exhibition found himself no less gratified in viewing the carvings of New Zealand, the paintings of the Eastern Archipelago, the necklaces and models of Tasmania, and the cloths and trinkets of India, than in gazing on the flowered silks of France, the bronzes and philosophical instruments of Germany, the tools and iron-work of Belgium, the domestic appliances and photographs of the United States, or the statuary and furniture of Austria.

Of these last we present several specimens. Much has been said and written about the Austrian furniture of Carl Leistler and Son, and much may still be said both in praise and dispraise of the wonderful collection exhibited by them. One set of writers have spoken of their contributions as in every respect excellent and irreproachable; another have condemned them as outrageous in form, deficient in taste, and wanting in fitness. Some have gone into raptures when describing the "zebra wood dining-table for forty persons," while others have declared that the most inveterate diners-out could find no place for their legs beneath it, on account of the multiplicity of its carvings and the elaboration of its ornament. The truth, it may be, lies between these extreme opinions.

As a whole, perhaps, no finer collection of ornamental cabinet work was ever brought together. A complete suite of rooms—a dining-room, drawing-room, boudoir, bedroom, and library—were furnished in the luxurious manner of the Austrian nobility; and a glimpse was thus given to untravelled Englishmen of the domestic habits of the highest classes in a great European empire. A portion of the furniture—the carved gothic bookcase and chairs *en suite*—were designed expressly for, and presented to, Her Majesty by the Emperor of Austria.

As specimens of first-rate workmanship the furniture of Leistler may be esteemed, as a whole, the best in the Crystal Palace; though exception might, in some instances, be taken to the designs of M. Bernardis as being of too intricate and complicated a character. But it must be remembered, in answer to this last suggestion, that the chairs and tables were intended for the wealthiest to sit upon and at.

In the primary forms adopted by the designer, regard has been paid to the style of architecture of the rooms in which the objects were intended to be placed—the gothic or pointed and geometrical, and the *renaissance*, or a combination of all other styles, predominating. This left ample margin for elaborate ornamentation and characteristic detail; and so we find scroll and shell and flower repeated in a vast variety of pleasing forms.

Of the material of which the majority of these objects is constructed a word may be said in passing. In the vast empire of Austria exist immense forests, which furnish large quantities of wood of almost every description. The commoner sorts are used for manufacturing purposes and fuel, while the finer kinds are set aside exclusively for the use of the cabinet-maker and carver. The beautiful brown zebra wood, of which the majority of Leistler's furniture is constructed, is capable of receiving a high degree of polish, and is considered as in no way inferior in appearance and wearing qualities to Spanish mahogany or rose wood, so much used in this country. The manufacture of ornamental furniture and inlaid floorings is carried on to a great extent in the cities of Vienna, Prague, Plass, Budweis, and in various parts of Hungary; and architectural carpentry forms a great and increasing means of employment to a large portion of the people. In the chief cities large manufacturing firms produce annually great quantities of furniture for home consumption and exportation; but in the mountain and valley districts, which occupy so large a portion of the surface of the Austrian empire, the making of domestic utensils and furniture constitutes the

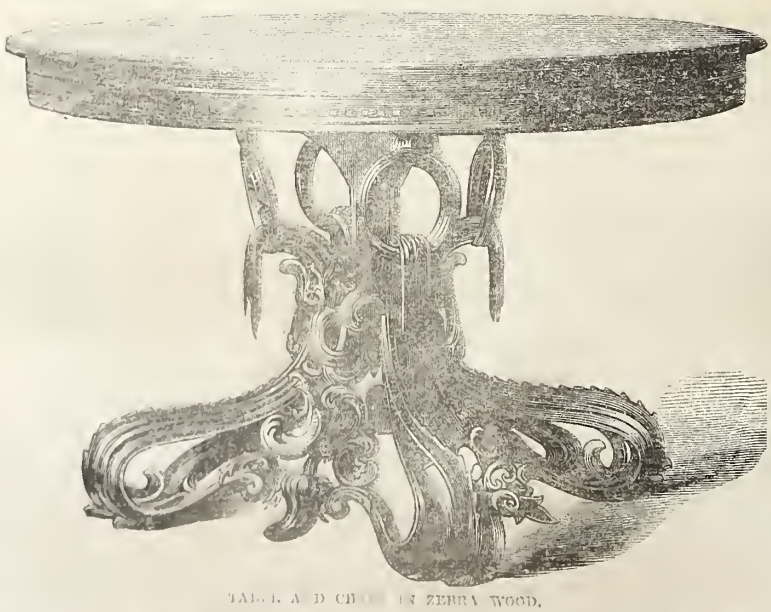


TABLE AND CHAIRS IN ZEBRA WOOD.

chief employment of the villagers. The extent of this branch of industry may be seen by a reference to the export tables of Austria. From 1843 to 1847 the declared value of the exports of such common wooden articles as casks, shovels, rakes, wheelbarrows, and gardening tools, amounted to a yearly average of 308,000 florins.

In these, and various articles of luxury and utility exhibited in 1851, may be discovered a decided advance in taste and design. The mind of the 19th century is no longer satisfied with the crudities of mere fitness; it must have beauty superadded. If we would have the people to value and appreciate our social institutions, we must not neglect the minor appliances of life. The graceful outline of a piece of ordinary furniture, and the appropriate decoration of a cheap domestic utensil, must have a tendency to refine and civilise the minds of even the uneducated; and the more we study to make art-manufacture popular—the more we bring the elegances of life into the houses of the people—the more we endeavour to familiarise the public mind with the standards of excellence as they have descended to us from Egypt, and Rome, and Greece, and India—the more we develop the genius of our artists and the talent of our workmen, by so much the more do we increase the material comforts of the millions—by so much the more do we elevate their characters and enlarge their minds. We shall resume this subject.

THE LADIES' DEPARTMENT.

CROCHET COUNTERPANE FOR A BASSINET.

Materials.—Knitting cottons Nos. 10 and 12; 8 oz. of blue beads, rather larger than seed; crochet-hooks Nos. 17 and 18.

The centre of the counterpane is made in diamonds, with small pieces at the edges, merely to fill in the parts where the diamonds leave spaces, and form the whole into a solid square. It is done in ribbed crochet. Ribbed crochet is so called from the work having the appearance of ridges. It is worked backwards and forwards thus: the top of a row of crotchet, whether s.c., d.c., or t.e., presents an appearance of chain-stitch. In working ribbed crochet, take up always that side of the chain which is farthest from you. The middle of the counterpane is done in knitting cotton No. 10; crochet-hook No. 17.

For the Diamonds.—(A) Make 2 ch., miss 1, 3 s.c. in the first ch.

2nd row: Turn the work; 1 ch., 1 s.c. in one, 3 s.c. in next, 1 s.c. in third.

3rd row: Turn, 1 ch., 2 s.c. in second, 3 s.c. in next, 2 s.c. in two last.

Thus you proceed, turning the work at the end of every row, working 1 s.c. in every one but the middle stitch, in which you work 3, until you have made 15 ribs, and the row has 61 stitches, a chain-stitch being made at the beginning of every row.

Now make 3 ch., on turning, and work 3 d.c. in the first stitch, × miss 2, 3 d.c. in third, × 9 times, miss 1, 3 d.c. in second, 1 ch., miss 1 (which should be at the point), 3 d.c. in second, miss 1, 3 d.c. in second, * miss 2, 3 d.c. in third, * 9 times. This completes the row, the last 3 d.c. coming on the last stitch.

Turn, × 5 ch., d.c. between the sets of 3 d.c. of the last row, × to the end; s.c. only at the last.

Turn, × 3 ch., s.c. under loop, × to the end, but with 5 ch. at the point; another s.c. in the last loop.

Turn, 2 ch., d.c. in every stitch of last row.

Turn, 1 ch., s.c. in every stitch of last row; fasten off.

This completes one diamond, and for a bassinet quilt will be enough. A glance at the engraving will show how they are joined together.

For the half-diamonds at the side (B), make 2 ch.; work 2 s.c. in the first of these, turn, 1 ch., 1 s.c. in the first of the two of last row, 2 s.c. in the second; turn, 1 ch., 2 s.c. in the first, and 1 in each of the other 2 s.c. of last row. Continue working thus, making two in one at the end of one row and the beginning of the next, until there are 31 stitches and 15 ribs. Then, for the open part, 2 ch., turn, work 3 d.c. in the first stitch, × miss 2, 3 d.c. in next, × 10 times.

2nd row of open work: Turn, × 5 ch., d.c. under the chain between the first and second set of 3 d.c., × repeat to the end of the row; 5 ch., s.c. at the end.

3rd: Turn, × 3 ch., s.c. under loop, × repeat to the end.

4th: 2 ch., turn, d.c. in every stitch to the end.

5th: 1 ch., turn, s.c. to the end.

For the side pieces (C) work in exactly the same manner, only beginning by working thus: 2 ch., turn, 2 s.c. in the first of these, 1 ch., turn, 2 *s.c. in the first of the two and* 1 *in the second.* This is just the reverse of the other, the increase continuing to be made at that edge where the first increases. Of course the last row will end at the point of one piece, and the short side of the other.

(D) 2 ch., work 3 s.c. in the first of these, 1 ch., turn, 2 s.c. in the first, 3 in the next, 2 in the last. Turn, 1 ch.; work this and all the following rows until you have 61 stitches in this manner. 2 s.c. in the first and last stitches, 3 in one in the centre, and 1 in one in every other (increasing 4 stitches in every row). The five open work rows to be done as in A.

(E) Work these pieces like A, until 10 ribs are done; then turn and s.c. up to the three centre stitches, *slip* on the first of the three × turn, miss the slip stitch, slip on the next, and s.c. to the end; turn, 1 ch., s.c. on all the s.c. but the last, which slip; × repeat between the marks until one stitch only remains, through which the thread is drawn. The other side of the point must then be worked to correspond with the first, the centre stitch not being worked at all.

(F) These two morsels are begun like B and C, and finished in the same way that E is. They will then exactly fit those corners. The other corners (G) are worked by beginning, as usual, with 2 ch., in the first of which work 3 s.c., × ch., turn, 2 s.c. in first and last stitches, and one in each intermediate; ×, repeating backwards and forwards until 3 stitches are in the row, when complete by open work as in B and C.

The numbers required of each piece are—A 28. B and C, five of each. D, E, F, G, two each. (A glance at the engraving will show the manner in which these are joined into an oblong square).

Eyelet-hole Border.—When all are sewed together, a line of d.c. must be worked all round, with 3 stitches in one at the corners, and 2 in one on each side of the three. This will make the corners perfectly square.

2nd round: × 1 d.c., 1 ch., miss 1 ×; repeat all round, but not missing any at the corners.

3rd round: (Eyelet-holes). These are to be worked quite separately from the last, at first. × 9 ch., close for a round in the second, and work 8 s.c. under the half, × repeat until a length is done sufficient to surround the square, every little round being half covered by the s.c. In covering the other half of each circle, you will attach it to the work thus:—4 more s.c. make the ch., slip the needle off the loop, insert it at the corner of second round, and draw the loop through, then 4 s.c. under the remainder of the circle, 1 s.c. on ch. between; × 4 s.c. under next eyelet-hole, miss 2 on the second round, insert the hook in the third, draw the loop through, and work 4 more under the ch.; × repeat, allowing 3 between, except at the corners.

4th round: S.c. (putting the hook under both sides of the chain) at the top of an eyelet-hole, × 5 ch., s.c. in the same way under the centre of the next, × all round, with 6 ch. at the corners.

5th round: × 1 d.c., 1 ch., miss 1, × all round, not missing any at the corners.

6th: S.c. all round, with 2 stitches in one at the corners.

Motto Borders.—For these use Goat's Head Cotton, No. 12, on which the beads must be strung before beginning to work. The borders are done entirely in s.c., the beads being dropped on, according to the pattern, *on the wrong side*, this *wrong* side being the *right* when beads are used in crochet. The ends have 241 chain each; the sides, 397. The pattern occupies 55 rows, and the squares at the corners have 55 chain, and the same number of rows.

The motto borders and corners are all worked separately, and afterwards sewed together. When completed, the eyelet-hole border is again added all round, and the counterpane then only requires a deep open border, which we will give next week.

This quilt would be very handsome, if worked in coarser cotton, for a full-sized bed. The small diamonds in the centre would thus be increased in size, and a sufficient number should be done to form a middle just three times the dimensions of that now given. The borders should be worked in open square crochet instead of s.c.; the pattern and letters in close squares on an open ground. It would, for this purpose, be requisite to make the chains of three times the number of stitches, and one over: or 724 for the ends, 1,192 for the sides, and 166 for the corners. In other respects the counterpane might be worked exactly from the instructions.

The family coat-of-arms and crest, correctly drawn, would make a very handsome centre for a counterpane in crochet. Where a quilt is done in square crochet, it should be laid over one of the new patent wadded counterpanes of a colour appropriate to the furniture of the room, as this displays the work to great advantage.

DEEP BORDER FOR BASSINET QUILT.

MATERIALS.—Knitting-cotton, Nos. 10 and 16; and Crochet-hook, No. 18.

This lace is to be worked round the last eyelet-hole border.

1st round: S.c. round the edge of the last border, with two stitches in every one for two inches on each side of the corners.

2nd: × 1 d.c., 1 ch., miss 1 × all round, but not missing any at the corners.

3rd: Like first, but with 2 in 1 for three inches round the corners, at the extreme points of which there will be 3 in 1 three times.

4th: Begin at a corner. × 2 d.c., 1 ch., miss 1., 1 d.c., 1 ch., miss 1, 2 d.c., 9 ch., miss 2, × 4 times. Then continue along the side, missing 6 instead of 2, until you come to within 41 stitches of the next corner, when you will miss two only again, and at the point of the corner miss none. All the sides are to be worked alike.

5th (Begin over the 2nd of the first 2 d.c.) + 2 d.c., 1 ch. (which comes over the 1 d.c.), 2 d.c., 5 ch., 1 d.c. on 5th of 9 ch., 5 ch. × all round.

6th: × 3 d.c. (the second coming over the 1 ch.), 5 ch., 3 d.c. (the second coming over 1 d.c.), 5 ch. × all round.

7th: × 1 d.c. (on the 2nd of the 3 d.c. you began with in last round), 5 ch., miss 4 ch., 2 d.c., 1 ch., miss 1 d.c., 2 d.c. 5 ch. × all round.

8th (Begin on the last chain before the 2 d.c.) × 2 d.c., 1 ch., miss 1, 1 d.c. over 1 ch., 1 ch., miss 1, 2 d.c., 9 ch. × all round.

Repeat from the 5th to the 8th round, inclusive of both, thrice; then the 5th and 6th again. This will make 18 rounds.

19th: × 1 s.c. on centre of the three d.c. you began the last round with, 6 ch., 2 d.c., 1 ch. (over the middle of 3 d.c.), 2 d.c., 6 ch., × all round.

20th: × 1 s.c. over 1 s.c., 6 ch., 2 d.c., 1 ch., 1 d.c. (over 1 ch. of last round), 1 ch., 2 d.c., 6 ch., × all round.

21st: × 1 slip on s.c., 1 s.c. on 1st of 6 ch., 7 ch., 2 d.c. (the 1st over 2nd d.c. of last round), 1 ch. over 1 d.c., 2 d.c., 7 ch., s.c. on last of 6 ch., × all round.

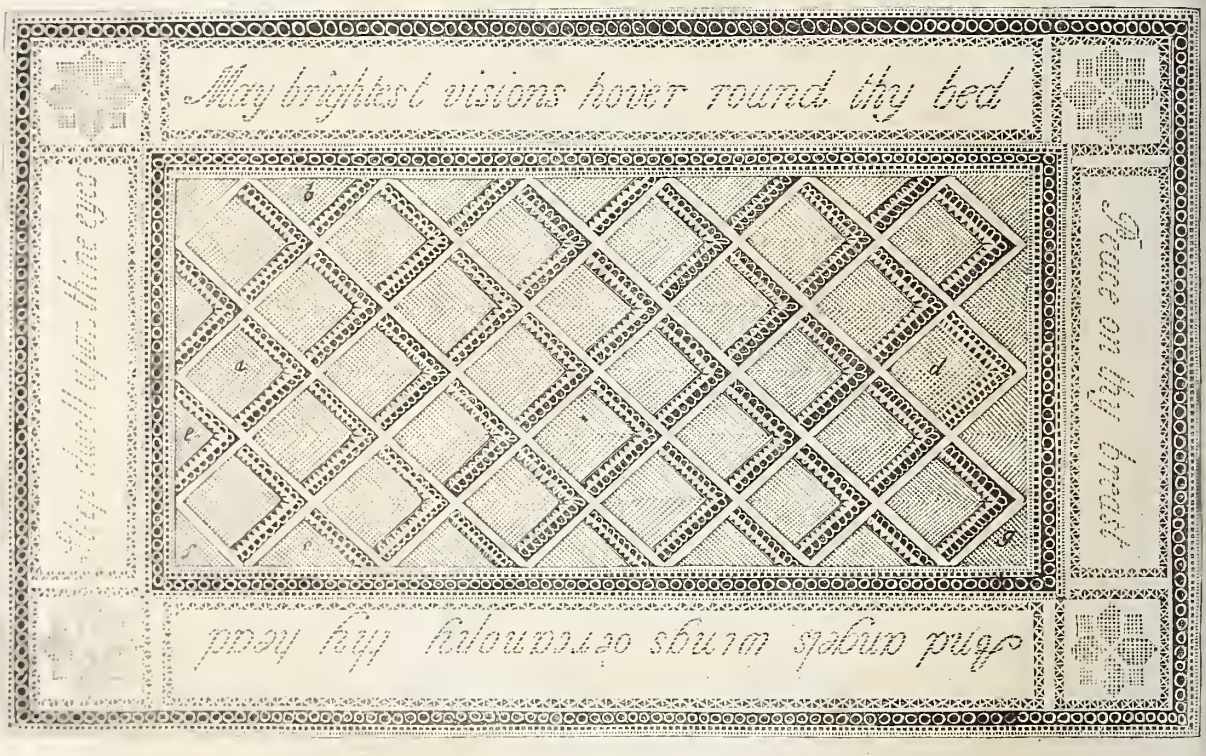
22nd: × s.c. on s.c., 4 ch., d.c. on 4th of 7 ch., 5 ch., 3 d.c. (the 2nd over 1 ch. of last round), 5 ch., 1 d.c. on 4th of 7 ch., 4 ch., s.c. on s.c., × all round.

23rd. × s.c. on s.c., 5 ch., 2 d.c. (the 1st over 1 d.c. of last round), 5 ch., 1 d.c. over centre of 3 d.c., 5 ch., 2 d.c. (the 2nd over 1 d.c.), 5 ch., s.c. on s.c., × all round.

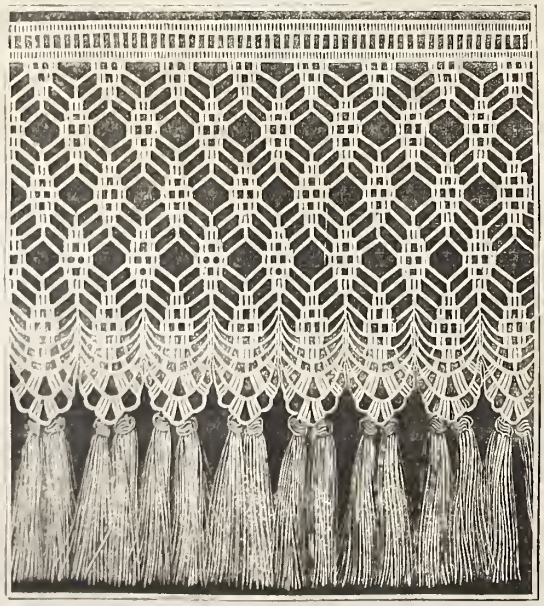
24th. × s.c. on s.c., 4 ch., 3 d.c. over 2 d.c., 3 ch., miss 2, 3 t.c. on 2 ch., 4 ch., miss 3 (that is, 1 d.c., and 1 ch. on each side of it), 3 t.c. on 2 ch., 3 ch., miss 2, 3 d.c. on 2 d.c., 4 ch., s.c. on s.c., and × all round.

25th: S.c. on 4 ch., * 4 ch., miss none, 4 d.c., * 6 times, 4 ch., miss none, 4 s.c. on 4 chains, × all round.

This is the last round. The fringe is then put on thus: wind your cotton (No. 16) twelve times round a card about 2¼ inches wide; slip it off, catch up the threads with a crochet-hook, and draw through one of the loops of 4 chain in the last round. When half-way through, pass the other ends through the loop; draw it up tightly, and cut the ends. Repeat this for every loop of 4 ch., and the fringe is complete.



CROCHET COUNTERPANE FOR A BASSINET.—(*See page* 127.)

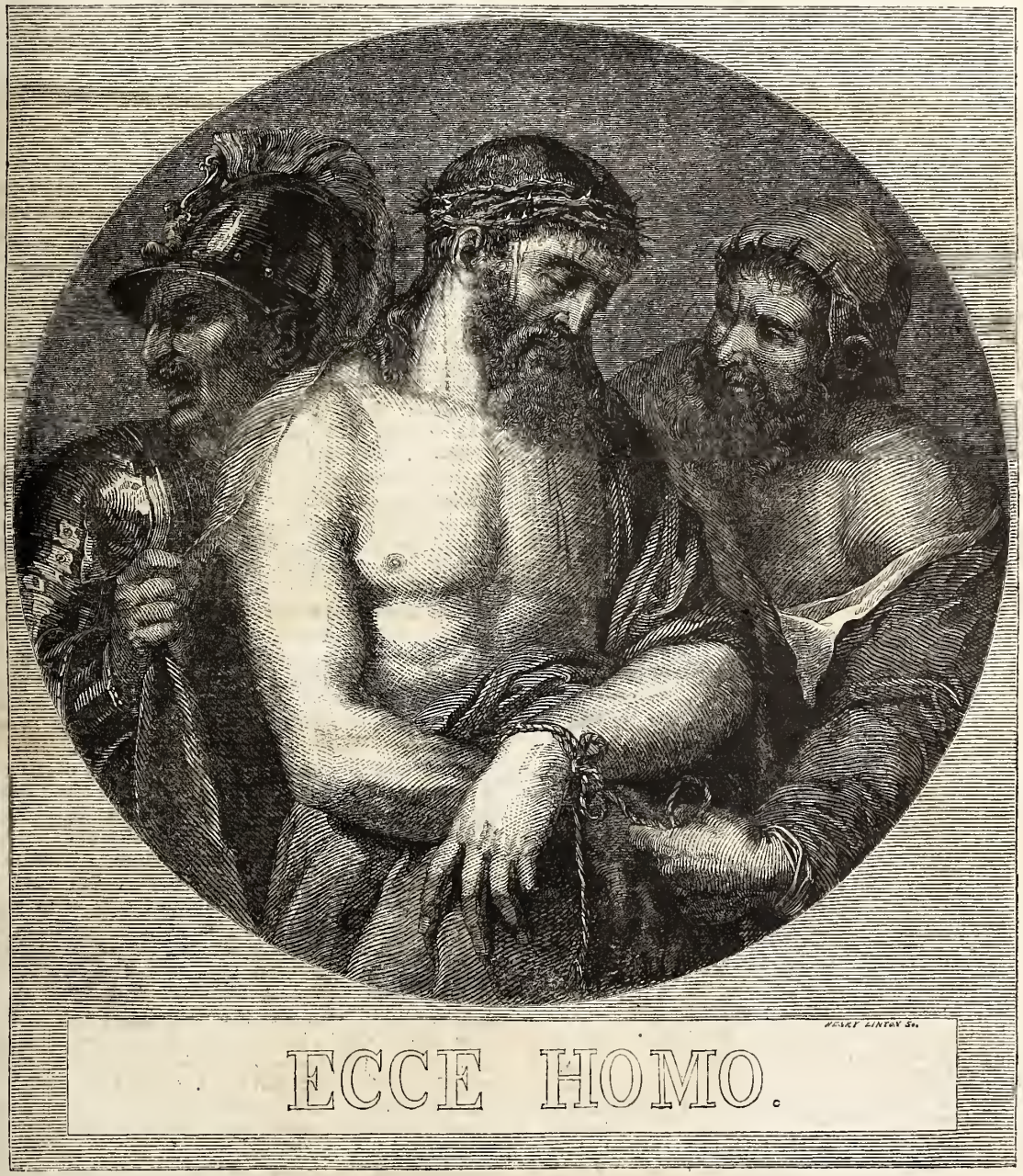


DEEP BORDER FOR BASSINET QUILT.

THE "ECCE HOMO" BY MURILLO.

Between religion and art there ever has been an intimate connexion. What the one teaches the other pourtrays. The human mind ever loves to realise whatever the annals of history may record; and that desire becomes higher the more sacred the history—the holier the theme. Thus few have read in the Gospel narrative of how Jesus came forth, wearing the crown of thorns and the purple robe, and how Pilate said unto the spectators around, "Behold the man!" without picturing the pallid face and bleeding brow of the Saviour who died for man a bitter death of agony and shame. To the Christian Church the subject has ever been dear. To art also it has been invested with peculiar interest. Painters have loved to impress it on the eye—poets and orators upon the heart.

The title of "Ecce Homo" (Behold the Man!) is given to such pictures as represent the Saviour crowned with thorns. Generally it is a single head, but sometimes other figures and accessories are introduced. Correggio's celebrated picture of that name consists of five half-length figures. As that picture adorns our own National Gallery, we need not describe it here. We may only say of it, in the language of Dr. Waagen, that "if it be one of the highest objects of art to purify by the beauty of the representation the most painful suffering, so that it should produce only a soothing and consolatory effect, Correggio has here attained that object in an astonishing degree." Amongst the other painters who have aspired to treat the same sad scene, a foremost place is due to Bartholomew E. Murillo.



DRAWN BY ANELAY, AND ENGRAVED BY H. LINTON, FROM A PAINTING BY BARTOLOMEO E. MURILLO.

It will not be out of place here to give a few particulars of his life. Murillo, the greatest of all the Spanish painters, was born at Seville on the 1st of January, 1613. He began by painting *tableaux de genre*—fairs, rustic festivals, and beggars.

He received his first instructions from his relation, Juan del Castello; but the latter having gone to settle at Cadiz, Murillo was obliged, for the means of subsistence, to have recourse to painting banners and small pictures for exportation to America. In that line he obtained full employment, and began to distinguish himself as an able colourist. He was still very young, says Pilkington, when he happened to see some work of Pedro de Moya, who was passing through Seville on his way to Cadiz, which, being painted in the style of Vandyke, inspired him with the desire of imitating that great artist, under whom De Moya had studied, shortly before his decease. The time Murillo was able to avail himself of De Moya's instruction was very short, and he resolved afterwards to repair to Italy for improvement; but his means were totally inadequate to meet the expenses of such a journey. Collecting, however, all his resources, he bought a quantity of canvas, divided it into a number of squares, upon which he painted subjects of devotion and flowers, and with the produce of these set out upon his journey unknown to his relations. On his arrival at Madrid, he waited upon Velasquez, his countryman, and communicated his plans to him. Struck with the zeal and talents of the young artist, Velasquez treated him with the greatest kindness, and diverted him from his journey to Rome by procuring for him full employment at the Escurial and in the different palaces of Madrid. Murillo returned to Seville in 1645, after an absence of three years. The following year he finished painting the little cloister of St. Francis, in a manner that much amazed his countrymen. The picture of the death of Santa Clara, and of that of St. James distributing alms, served to crown his reputation. In the first he showed himself a colourist equal to Vandyke; in the second a rival of Velasquez. They obtained him a multitude of commissions, which were not long in procuring him an independent fortune. His success, however, never led him to be careless of his reputation. He gradually perfected his manner by giving more boldness to his pencil, and without abandoning that sweetness of colouring which distinguished him from all his rivals, increasing its strength, and giving greater freedom to his touch. Having been invited to Cadiz to paint the grand altar of the Capuchins, he there executed his celebrated picture of the Marriage of St. Katherine. He died in 1685, by a fall from a scaffold, on which he stood when engaged in that great work. Previous to 1801 his pictures were little known in England, and his best works not at all. The Peninsular war was the means of acquainting us better with Murillo, and the other masters of the Spanish school.

Of Murillo, Mrs. Jamieson, in her "Handbook of the Public Galleries of Art," says:—

"Though he ascended afterwards by mere force of native power and feeling to the highest religious and historical subjects, there is a taint—I will not call it a *taint*—of his early studies running all through them. Still I cannot regret, with others, that he never visited Italy; there art was in its decline, and the best master then living was Pietro da Cortona. In his own country he had Velasquez for his master; the most select and beautiful pictures of Titian for his models; nature for his inspirer;—nature, free, harmonious, picturesque—the fervid nature of his own sunny climate—the mingling of the classic, the Gothic, the Moorish, in blood, aspect, and manners, which, if far removed from the ideal, was in the highest degree striking and expressive. The stamp of national character and organisation impressed on all Murillo's pictures, gives to his beggars and domestic subjects a beauty and value quite peculiar, while in his grand historical pictures it was directed by such an elevated feeling, and embellished by such a graceful suavity of execution, that it becomes a characteristic of the painter, blended with his individual excellencies, and which we cannot wish away. 'His colour is clear, tender, and harmonious; and, though it possesses the truth of Titian, and the sweetness of Vandyke, it has nothing of the servility of imitation. Though he often adopts a beautiful and elevated expression, there is a portrait-like simplicity in the airs of his heads, which perpetually recalls us to common nature. His style may be said to hold a middle rank between the unpolished naturalness of the Flemish, and the ideal grace and grandeur of the Italian school." Of all these characteristic qualities, his "Holy Family," in our own National Gallery, may be considered a fair specimen, and should be studied with attention.

We have said Murillo was among the first of the Spanish painters. A few words as to the Spanish School of Painting, consequently, will not be amiss. Allan Cunningham says the school of Spain has a roll of early artists and a list of paintings to produce of a respectable antiquity, but the former are without fame, and the latter without shape or soul. The fountain of her art is muddy; nor is the fuller stream perfectly pure and deep. Without referring to those who, in barbarous times, wrought in stone, and wood, or on parchment, or glass, or, when religion gave light to painting, produced the first Babes, and Virgins, and Saints, we may briefly say that Antonio del Rincon is allowed to be the earliest who vindicated, by his productions, the genius of his country.

He was born at Guadalaxara, in 1461; caught a love of art from the old mechanical workmen of Spain; carried his desire to excel to Rome, where he studied under competent masters; and, returning home, was honoured by the appointment of painter to the munificent Ferdinand and Isabella. His works are of the kind called historic: he embodied the legends of the church, nor did he hesitate to employ the portraits of the living to represent the dead or the forgotten. Time and accident have wasted his productions those which he expected to carry his name to future ages, perished when the palace of the Prado was burnt: they had a shade of the Moorish character in them. Blas de Prado carried the art a step farther towards excellence: his Descent from the Cross shows talents akin, it is said, to those of Parmegiano. He was also skilful in portraiture, and painted in Barbary the daughter of the Emperor of Morocco, for which he was highly rewarded. The next painter drew his inspiration from another source; this was Fernando Gallegos, born at Salamanca in 1500, and who became the scholar of Albert Durer; he followed this German master with a success which procured him the patronage of the Emperor Charles V. There is a touch of the gothic in all his works. But Pedro Campana drank at a purer fountain; he went to Rome, and studied Raphael, and is now named with those who give as much honour as they draw from the Roman school. He painted the triumphal arch at Bologna for the reception of Charles V., and in Seville executed his famous picture of the Nativity and Purification: he also painted a Descent from the Cross. These artists seem to have trod carefully, as far as their choice of subjects enables us to judge, in the footsteps of others.

The next we come to was Louis Morales, the pupil of Pedro Campana, called, on account of the subjects which he painted, *El Divino Morales*, but as others, with more truth, assert, because of the air of heaven shed over his performances. In sweetness and expression he has been likened to Da Vinci. He died in 1556. The pictures of Pedro de Marmolija are distinguished by a grandeur and sublimity rare in the Spanish school. Gaspar Becerra, born in Andalusia, in 1520, having studied under Michael Angelo, aided in freeing Spanish art from much of its barbarism, by introducing a happier taste and more scientific style. But we hasten to the time of Velasquez, who stands out as a bright, particular star. Velasquez came of an ancient race, and was born at Seville, in 1594. He studied under Francesco Herrera, a rigid master, but of great ability. He forsook the scriptural track and legendary highway to fame in painting, and selected subjects from nature, which at first he treated in the manner of Caravaggio; but, on seeing more graceful models, he changed his style, and sought to unite that of Guido to the manner of Luis Tristan, whose happiest works he called the best of all works. One of his earliest pictures—a work of wonderful nature and expression—represents an old Aquador in a tattered cloak, giving a drink of water to a boy; the figures were portraits; this, or some other of his productions, attracted the notice of the Prime Minister, Olivarez, who invited him to his house, sat himself, and persuaded the King to sit for his portrait also. The Prime Minister praised this performance, and all the court applauded it. And it merited their applause. The King is in rich armour, and on horseback, with that serene and almost melancholy loftiness of look which distinguishes most of the portraits of this ancient master. He studied the history of his country, and in his picture of the Expulsion of the Moors, where he entered the list against three rivals, succeeded so completely, that Philip increased his pension. To prepare him for other efforts, he was sent by the King to Rome: his studies,

nited to eighteen months, were visible in his picture of Jacob cognising the Coat of Joseph, as well as in the Infidelity of enus, and the Crucifixion—a work sufficient of itself for immorlity. He was the friend of Rubens, who felt his genius; and ough he continued the friend of Olivarez after his disgrace, the ing, so far from resenting it, rather loved him the more for it, id continued to heap commissions on him, and dealt out with a eral hand both gold and commendation. He died suddenly of fever, in the blaze of his fame.

After Velasquez comes Murillo, and then we meet with no mes worthy of record. The list of paioters belonging to the panish school generally concludes with the name of Claudio ello, painter to Philip IV. We might give many more names, it it is unnecessary to do so. To the whole school one character rtains. Their painting was chiefly of a religious character. hey sought few subjects for the pencil in either the poetry or the istory of their country. Occasionally, but very rarely, they inilged in landscape or portraiture, but the staple commodity was a devotional kind. Their favourite subjects were processions f holy men—miracles of traditional saints—legends, real or naginary—and when these fruitful sources failed, the history of hrist and the acts of the apostles. Though not aiming at much riginality, the Spanish school will live while art is loved—live r ever in the natural ease and colouring of Murillo, or in elasquez's gloomier grace.

VENICE.

TTILA, the "Scourge of God," was in the habit of boasting, nat the grass never grew where his horse had once trod; but it ust for ever remain a striking monument of the vanity of earthly isdom, and the weakness of human valour, that the ferocious onqueror of the Western Empire should have laid the foundation f one of the mightiest states of modern Europe; and that the erce bands, who gave form and consistency to feudalism, should lso have provided a nursing mother for commerce and art.

The province of *Venetia*, or *Henetia*, included, in ancient times, large fertile tract of Italy, and was the seat of many flourishing nd populous towns. Two of them, Aquileia and Padua, were ne chosen residence of opulent knights and senators, and were enowned for the vast extent of their agricultural and manufacuring industry. But when the barbarians for the first time ntered Italy, and effaced whatever traces yet remained of the restige of ancient power, this fertile garden was turned into a owling wilderness. Attila overran the whole country, sacking ne towns and slaughtering the inhabitants. Those of the popu·ation who, bereft of property and liberty, were still left in the njoyment of a precarious and degraded existence, looked around or some refuge in which they might dwell, it might be in hardhip, or perhaps in want, but at least in security. Within half an our's sail of their coast, a hundred muddy islands rose feebly om the sluggish waters of the Adriatic. These sand-banks—for ney were little else—were the deposits carried down, during the ourse of many centuries, by the thirty rivers which discharge eir waters into this part of the gulf. The narrow channels hich separated them could only be navigated by skilful and xperienced pilots, and were a sure defence against the approach f a foreign invader. To these the terrified Venetians fled in rowds from the mainland; and here, for many a year, noble milies, who had been accustomed to revel in luxury, were conent to earn a scanty subsistence by fishing, and the extraction of alt from the waters of the sea. Cassiodorus compares them to ater-fowl which had fixed their nests on the bosom of the waves, nd expresses his earnest sympathy with their poverty and misortune. Nothing tends so much to the growth and formation of nergy and determination of character as a struggle against dverse circumstances and unpropitious fortune. Devotion and eroism, which slumber in the lap of prosperity, spring into life nd action when prosperity has deserted us and fled. The first fforts of the Venetians were directed towards the supply of the ecessaries of a coarse and hard existence; but when the continued xercise of self-reliance had proved more than sufficient to satisfy ese demands, the desire for wealth and its concomitant power rapidly succeeded. The far-famed Rialto*—a sort of port to Padua —was already in existence, and other buildings began to spring up. Ships were built, and commerce and navigation extended. The foundation of some of the principal buildings was laid on the 25th of March, early in the fifth century; "the day," says the old historian, "on which Christ was conceived in the womb of the Virgin, and Adam, the parent of mankind, was formed by God." The neighbouring sands were soon peopled by other fugitives, and, with a feeling of devout thankfulness for the refuge they had found, the townsmen of Altino gave to their adopted asylum the name of the "Port of the Deserted City."

The growth of their commerce, and the increase of their population, obliged the Venetians to establish forthwith some form of government adapted to their habits and situation. Each fresh outrage on the continent was adding to their numbers, and each fugitive, smarting under his wrongs and spoliation, was eager to adopt whatever system afforded him the best prospect of personal liberty and security for his property. Each of the islands elected a tribune, who exercised the office of a judge during one year only, and had to answer to a general assembly of the whole republic for the manner in which he discharged his duties.

The invasion of the Lombards drove more of the inhabitants from the mainland, and with the increase of strength came th demaud for increased energy and centralisation in the government. A general assembly was therefore convoked at Heraclea, and it was determined to entrust to a single magistrate, to be called, in the corrupted Latin of the day, a *doge*, or dux, or duke, the power which had hitherto been divided amongst several tribunes. Twelve electors, the heads of the proudest families of the Venetian aristocracy, united their suffrages in favour of Paola Luca Anafesto, a citizen of Heraclea. The dignity was conferred for life. He was assisted by a Council of State, the members of which were nominated by himself. He had complete control over the public revenues. He appointed judges and tribunes, and summoned all ecclesiastical synods. All appeals from inferior courts lay to him, and he alone could declare war and make peace; in short, he was almost absolute. But frequent abuses of power by his successors, the jealousy of the nobles, and turbulence of the populace, brought about a series of revolutions, which at last reduced the doge to a puppet, and annihilated the liberties of the people. A haughty aristocracy seized the reins of power, and exercised the powers of Government, either under the varied titles of Councils of Five Hundred, or Ten, or smaller numbers. But the Republic, nevertheless, continued to thrive and flourish. It soon was able to defy the power of the mightiest monarchs of the European Continent. Charlemagne claimed no sovereignty over it, and when his son Pepin attempted to subdue it, he was ignominiously defeated. His lofty war-ships were stranded in the narrow channels, or *lagunas*, which surrounded the islands, and burnt amidst the contemptuous laughter of the Venetians, whilst his cavalry perished helplessly in the attempt to swim across. Placed on the confines of the Greek and Latin Empires, the islanders acknowledged the sovereignty of neither, and in their religious creed professed equal independence of the pope of Rome and the patriarch of Constantinople. The sea was the element by which they triumphed and grew rich. They were the carriers to Europe of all the wealth of the East, and monopolised the commerce of the Mediterranean. To the crusaders they furnished gallies and money. Their bank was the first that was ever established, and was the source to which all the Kings of Europe applied for assistance in their necessity. Their splendid palaces, gorgeous senate-house, magnificent churches, and capacious arsenal, were the admiration of all the world. From their harbour a hundred gallies, fully manned and armed, could issue, to protect their commerce, or assert the honour of their flag. The Greeks, the Turks, and the Normans, were alike worsted in all their attempts against the liberty and independence of the "Bride of the Sea."

We cannot, in our limited space, attempt to follow the Venetian Republic through all the revolutions, battles, sieges, and fortunes of her chequered and romantic history, but we cordially hope that

* *Rivo alto*—the deep stream—abbreviated into *Rialto*, is a name applied to three different places:—the island, *Isola di Rialto*; the bridge, *Il Ponte di Rialto*; and the Exchange, *the* Rialto of Shakspere, which stands upon the island.

our brief and meagre sketch may be the means of exciting the curiosity of our readers, and inducing them to seek in larger works the wondrous story of this ill-fated state. The wildest romances and the darkest tragedies have had their scenes laid in the City of the Waters. Her cavaliers were reputed the wealthiest, the most luxurious, and the most refined in the world. Her ladies were the gayest, the softest, and the most voluptuous. Many are the bewitching strains which are said to have been sung in the stillness of the soft Italian nights, in the lightly-bounding gondolas, by enamoured swains, under the windows of their mistresses' chambers.

Byron has immortalised one of the darkest scenes in Venetian history; and when the traveller, at the present day, sees the empty frame which *should* contain the portrait of Marino Faliero, veiled in crape, and reads the inscription underneath, which tells of his crime and its punishment, his thoughts naturally recur to the past glories of the Republic, when her laws triumphed over the treason of the first magistrate in the state; but while he remembers her greatness with awe and admiration, he cannot help shuddering at the crimes committed in her name. "The Bridge of Sighs"—across which the many victims of oppression, conspiracy, and cruelty, passed from an unjust judgment to a lonely and terrible death—stands still, a sad memorial of the vices and enormities of an unbridled oligarchy.

When the passage to the East, around the Cape of Good Hope, was discovered, the commerce of Venice began to decline; and her history since then is little else than a series of misfortunes. Her glory has now utterly departed. The terrible genius of Napoleon proved more than a match for the advantages of her position. When Italy fell before French arms, Venice fell also. At the peace of Vienna, the congress of crowned robbers, in dividing the spoil, placed her amongst the states allotted to Austria; and she has ever since groaned under the iron yoke of despotism. Her vain attempt at revolution in 1848 met with a terrible retribution. Her wealth, her commerce, her genius, have languished and died in the arms of absolutism. The spacious quays and deep canals are still there, but no vessels crowd the harbour, and there is no hum of busy traffic on the wharf. The gentle Adriatic, to which every year the Doge wedded the city with a golden ring, still washes the walls of the lordly palaces with its soothing and voluptuous murmur, but there is no longer the gay response of revelry from within. The nobles are banished, impoverished, or enslaved; the people are silent before the cannon and bayonets of the Austrian soldier; and little of Venice remains but th imperishable monuments of her art; and even her vices hav lost the grace and charm which often palliated, and sometime even dignified, them.

No description that we could give would furnish an idea half s clear of the position and general appearance of the city as ou engraving. But there are still many things which the artist ca never depict—the clearness of the atmosphere, the deep blue o the sky, the golden light reflected from the water, and th gorgeous colours of the public buildings.

Venice is composed of one hundred and twenty islands o various sizes, connected with one another by one hundred an eight bridges, almost all of stone. The grand canal divides it int two unequal parts; that to the west is called *di quá dell' acqu* and the other, which is much larger, is *di lá dell' acqua.* In fo lowing the course of this canal, the reader may remark that it crossed by but one bridge, the Rialto; but at certain parts gon dolas are constantly ready to ferry passengers over at a trifling charge. Except by the wealthier classes, however, and fo pleasure on moonlight nights, the gondolas are not much used b the inhabitants, as it is quite easy to pass from one part of th



VENICE.

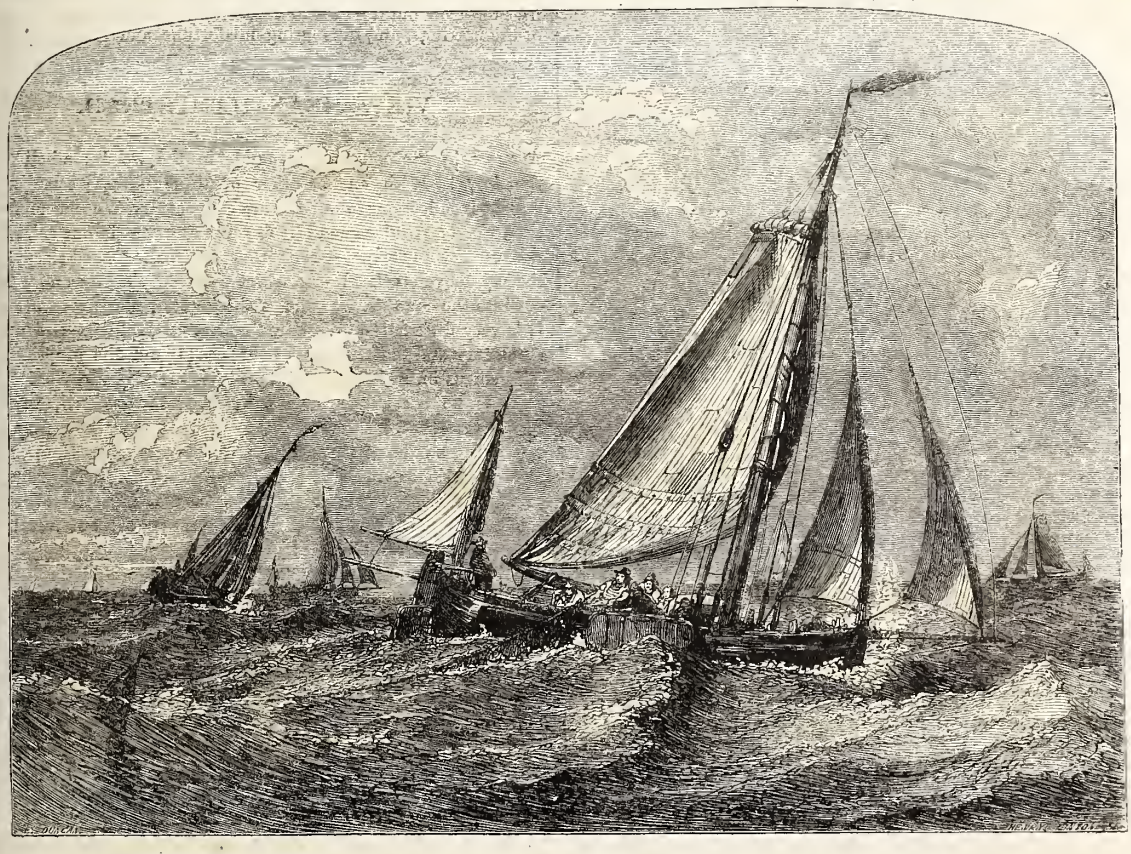
town to the other by means of the bridges and narrow streets The small patch of land at the bottom of the engraving, to the right of the reader, is part of the island of Santa Maria della Grazia To the left, towards the west, is the narrow island, long and semi-circular, *Giudecca;* so called from the circumstance that the firs Jews who settled at Venice established themselves here; and in it, we may reasonably presume, Shylock counted over his "monie and his usances." It is also sometimes called *Spina Longa,* or the Long Thorn.

The public buildings of Venice are too numerous to be ever named in the limits of our space, but they are all distinctly marked in our engraving. The white line on this side the island of St. Giorgio Maggiore, marks the position of the Slavonic Quay there also are the Piazetta and its two colonnades; the palace o the Doge, behind which may be seen the dome of the church o St. Mark, and the Bridge of Sighs, &c., &c. Beyond the city line may be distinguished indicating the position of the railway which unites the town with the mainland. To the right are the islands of Cristoforo, and San Michael, the two cemeteries of Venice; Marano, in which the manufactures of glass and crystals were carried on; San Cyprian, San Chiara, San Matia, San Giacomo, Marzorbo, Torcello, Burano, &c.

THE DOGGERBANK.

The appendix to the Report of the Commissioners of Inquiry into the state of the Irish Fisheries, which was laid before Parliament in 1836, contains an historical sketch of the progress of the British and Irish Fisheries, from which we glean a few brief particulars, which may be not uninteresting or uninstructive to our readers.

So early as the ninth century the herring-fishery was extensively pursued along the Scotch coast, and continued to be a source of great profit to the natives until the Convention of the Royal Burghs, which prohibited the exportation of any fish before the resident population of the country had been supplied at a stipulated price. In consequence of this interference, many of the fishermen passed over into Holland, and laid the foundation of the competition in this branch of maritime industry which has since so largely prevailed between the Dutch and English. By James III. of Scotland, and the subsequent sovereigns of that occasion the miserable capital employed was exhausted in the purchase and fitting-out of a few busses, built in Holland, and manned with Dutchmen, which were seized by the French on the breaking out of the war. In 1713, it was proposed to raise £180,000, on annuities, for the purpose of establishing a fishing company; but the project met with little encouragement. Two further efforts, made in 1720 and 1750, were alike unsuccessful. For these failures two reasons have been assigned—the rule which made London the head-quarters of the fishery, it being the dearest port in the kingdom, and the great superiority of the Dutch in the art. In 1749, by the recommendation of George II., in his opening speech to Parliament, a Committee of the House of Commons was appointed to inquire into the state of the herring and white fisheries, and, as the result of its labours, a corporation was formed, with a capital of £500,000, under the name of "The Society of the Free British Fishery," of which



FISHING VESSELS ON THE DOGGERBANK. DRAWN BY DUNCAN: ENGRAVED BY H. LINTON.

nation, several enactments were passed for the promotion of the fisheries; and James VI., before his accession to the English throne, directed the building of three towns for the same purpose; but this measure failed of success. Again, in 1632, a royal fishing company was established by Charles I., under the title of "An Association of the Three Kingdoms for a General Fishery within the hail Seas and Coasts of His Majesty's said Kingdom." For the encouragement of this adventure, the importation of foreign fish was prohibited; a supply was ordered for the navy, and the strict observance of Lent was enjoined. The breaking out of the civil war, however, shortly afterwards, put an end to this scheme. In 1660, Parliament granted a remission of the Salt Duties, as a further encouragement to the fisheries, and freed all materials employed in the taking or curing of the fish from Customs and Excise. A few years later these measures of "protection" were followed by others which allowed the free importation of all commodities imported in return for fish supplied to foreign countries. Charles II., on his restoration, appointed, in 1667, "The Company of the Royal Fishery of England;" but on this the Prince of Wales was chosen governor. This society, though patronised by men of the first rank in the kingdom, and supported by a bounty of 56s. per ton to the vessels employed, soon began to languish, and in a few years proved a total failure. The attention of Parliament was again called to this great national object in 1786, when a new corporation was formed, under the name of "The British Society for Extending the Fisheries and Improving the Sea-Coasts of the Kingdom," which has continued, with various modifications, to the present time. Another Act was passed in 1806, which prescribed regulations for fishing, curing, inspecting, and branding herrings; and a board of seven commissioners, separate and distinct from the Customs and Excise, was appointed for administering the law. In 1830, the system of bounty, which had proved rather an injury than a healthful stimulus to the fisheries, was abolished; and since then the average number of barrels of herrings cured and exported has steadily and largely increased. The fishermen, deprived of extraneous aid, have been thrown upon their own exertions, and the increase of their prosperity has kept pace with their aug-

mented industry. The British home fisheries include cod, ling, hake, herring, lobsters, mackerel, oysters, pilchards, and salmon; but of these the herring and cod form by much the largest proportion in the quantity taken. The principal stations for the herring fishery are off the Shetland and Western Isles, and off the Coast of Norfolk, in which the Dutch also share. The two seasons for this fishery are—the first, from June to the end of August; and the second, in autumn.

As a set-off to these historical details of the British fisheries, we shall conclude this paper with an old sailor's account of his "first and last" fishing experience on the Doggerbank. This extensive sand-bank lies between the East Coast of England and the West Coast of Holland, and forms the chief cod-fishing ground for the English and Dutch. It is further famous for a sanguinary, but indecisive, battle which was fought between the English, under Admiral Parker, and the Dutch, under Admiral Zoutman, in 1781. What follows, we give in the old sailor's own words, addressed to his son, whom he had named after the fishing-ground:—

"Yes, Doggerbank, I'll tell you this very day why you bear this name. It will not displease you when you know that it reminds me of my first and last fishing. It was on that sand-bank, the Doggerbank, that I begun and ended my life as a fisherman. I belong to Yarmouth, and so did my father and grandfather, and I am proud of it. I have not acted as my father did—I left the occupation; but you, my boy, must do as he did: do you understand? To those who try to persuade you to become a sailor, an officer, or what not—who advise you to seek your fortune as your father did—you must reply:—'I won't go farther north than Fair Island, nor farther south than the Yare; I'll not leave the North Sea. The Doggerbank has given me its name; it is my godfather; it will support me, and I'll not forsake the fleets which cover it.'

"I was less than you, and not more than seven years old, in the spring of 1773, when my father said to me, 'James, you must come to the great fishery.' It is now forty-five years since then, and I have not forgotten how my heart leaped as I heard him say this. All the fishermen were assembled round the boats on the shore, drying the nets, mending the barrels, and putting on board heaps of Spanish salt. As for me, I believed that I had become a man at one leap. At one moment I was amongst the pots in which the oak-bark was boiling, at another I was helping to raise the nets and plunge them into the brown jelly to make them tough and strong. I was in everybody's way, and under everybody's feet, and got plenty of kicks and blows. At length everything was ready, the sails were spread, and every man was at his post. With loud hurrahs we set sail, and so well did I perform my part in this concert of shouting, that my father's second in command threw a bucket-full of water over me, as a reward for my noise.

"The general rendezvous was Fair Island, between Shetland and the Orkneys, and our herring-buss, being a good sailer, was soon amongst the foremost of the fleet. Towards the evening my father told us that we were over the Doggerbank, in five fathoms of water. Just then I began to perceive, at some distance, a long luminous line, and rubbed my eyes to make out what it was. At first the sea appeared quite black, but its waves became suddenly illuminated. 'There go the herrings!' cried the man on the look-out, and I became wild with excitement. The close column of fish which was swimming before us seemed likely to cross our course, and those of the men who were not occupied with the management of the boats appeared fascinated by the living billow, whose shining scales glittered brightly upon the sombre sea. No one paid any attention to me.

"I went forward to avoid the risk of falling overboard, and threw into the living waters a hood given me by my mother to shroud me from the cold, and which I had secretly fastened to a hook. I drew it up heavily, almost losing my breath in the effort; and as I went aft towards the binnacle light, I had not eyes enough to admire, in the midst of the small fry which fell frisking on the benches about me, an enormous herring, with a silver-coloured belly and a bright green back, such as those which the Dutch call *groene harengs*, and which, on their arrival in June, cure all maladies. As I was admiringly contemplating my splendid prize, my father's boatswain launched forth upon me in a torrent of abuse,—

"'You cursed brat!' roared he, 'you have done for us! You have taken the king of the herrings.'

"My father speedily snatched the hood from my hands, and threw both it and the fish back into the sea.

"'It's no good to do that,' remarked the boatswain, who cordially hated me. 'A herring once out of the water is as good as a herring dead. That one will never revive, nor ever again lead his army in spring. Our fishing now is not worth a fig.'

"From that moment I received nothing but cuffs and ill-treatment from the whole crew. Nevertheless, the fish that year proved more abundant than had ever been known within the memory of man. They were sold at the rate of thirty-four dozen for a penny, and were even given away for nothing to those who chose to accept them. For a time our own success was equal to any of the others. On our twelfth voyage, always to the Dogger bank, our overcharged nets broke with the weight of the fish; and, as if to complete the misfortune, a Dutch dog-boat ran into us on our starboard quarter, and we were forced to leave the fishing-ground, and return to Yarmouth to repair the damage. Whilst we were thus absent our neighbours enriched themselves by almost miraculous takes of fish, and I was pointed at as the source and author of all our misfortune. The next year I entered as cabin-boy on board a privateer; but throughout the whole course of my roving life I regretted that I had left my place in the fishing-boat and at the hearth of my father. I had adventures enough, but none of the homely comforts and joys which I had abandoned for the wild life of a rover. God sends the fish as he sends the corn, the water, the light, and the air without restriction or limit. Be a fisherman, then, my boy; and when they try to persuade you to push your fortune abroad, say 'No; I'll be a fisherman, as my grandfather was, and thus bring joy and plenty to my home.' To-morrow your uncle's smack sails for the Doggerbank: you shall go with him; but be not the first to throw out a net, lest, like me, you should catch the king of the herrings, and thus bring misfortune and failure upon the rest."

VIEW NEAR HAMPSTEAD.

A WALK in the country; a ramble in the woods; a holiday in the fields! With one or other of these phrases some of the dearest recollections of our life are connected. We remember the time when a regular good idle day was an event in our existence; when to get up early—so early that the streets looked sleepy, and the sky above our head was as yet free from smoke—and wander out into the country, was one of the greatest pleasures we knew. It is very different now. Cares and responsibilities rise up all around us, and the customs of the world, and the proprieties of life hem us in, as it were, with an invisible network, from which there is no escaping. Cares, responsibilities—well, what of them? though we should have shrunk at one time from encountering a tithe of them, they are pleasures now. Home, wife, children, friends, make the man think very differently from the boy. It is better that it should be so; the prattle of infant voices *may* drive away the romance of youth, but how many chastened joys come with it!

"A regular good idle day." Many people would think that a very objectionable phrase; as what possible good can come out of idleness? Oh, most industrious friend, most hard of taskmasters, most conscientious of workmen, remember old Æsop's fable: if the bow be always bent, it must either lose its tension or snap at last. And so, away from stool and desk, and books and figures in long grim rows, and out of the wilderness of bricks and mortar, we have wandered, many a time, to enjoy an idle day in the country.

Three miles or so, and we are there. And now, once for all, we protest against London being called a dull place for a thoughtful man. If any so incline—that is, if any take the trouble to acquaint himself with the past of our great city—he may people the streets with recollections of its former inhabitants—the greatest men in the world, some of them—and hang romances about the dullest-looking houses, and the most-out-of-the-way nooks and corners. And then as to the country around it. Why, just take the map, and carry your finger outwards from the city for half-a-dozen miles in almost any direction, and you will find green fields in plenty. It is a fact, that there are in Surrey, Kent, and Middlesex, within sound of the bells that Richard Whittington listened to,—and many a London apprentice since has tried hard to hear ringing out the same tune,—some of the most glorious patches of scenery that bright sun ever shone upon. Talk of green lanes and flowery fields, and the idle days of our youth come back again—in fancy. We are once more the fervent boy whom nobody understood, or perhaps cared to understand, wandering out by ourself amid the fields, with no companion but a book. Ah! those were the days when Shakspeare and Spencer had greater attractions for us than last night's debate, or the latest intelligence from France. What cared we then how the world wagged, so that we could bury ourself in the woes of Denmark's prince, or go sword in hand with Sir Calpine to the rescue of Serena.

And then the sunny spots out of town we knew so well; the lanes we traversed without meeting any more important personage than a farm-labourer; the green fields where we have lain luxuriously among the wild cowslips by the hour together; the bits of wood where we could wander uninterruptedly, and rave out our scraps of poetry without fear or chance of being overheard; the trees we have climbed to peep at the finch's speckled eggs; the dells where we have followed the brown squirrel as it skipped from branch to branch, or ran before us in the tiny sheep paths; the little solitary streams where we have watched the bright fish dart and jump in the clear sparkling depths; or seen the thousand May flies sport upon the sunlit surface; the deep shady knolls we have walked silently through, listening to the voices of the feathered choristers on leaf and spray as they sang their morning hymns to God; the solitary trees we have peered up into high above our head, to catch a glimpse of the wild pigeon's nest, just a few twigs set crosswise, through which the little eggs were visible. Oh! they were days of happiness, indeed.

A few years pass, and then a change. No longer do we take our walks alone. We have a companion, somewhat older but no less enthusiastic than ourself. The real business of life is just beginning—the heat of the battle becoming warmer and more warm—the strife and the struggle just hard enough to make us think seriously of overcoming them. In the morning, we read together out of hard, serious, thought-compelling books; in the evening, we walk in the fields, if it be summer, or sit beside our own fire-side, if it be winter, in all the independence of real householders. No matter that the apartment be the topmost room of a great, old, straggling house in a little, old-fashioned square, which is dignified by being called an inn of court—it is our own, and we are the masters of it, and of ourselves. A little relaxation now and then, a visit of courtesy to some rich man's mansion, or a passing glimpse of London life in its not most estimable features, only make us come back to our studies and our pleasures with the greater zest; and the lessons conned from the experience of ages are no less appreciated at home because, sometimes, two pairs of brawny arms have impelled a river-boat to Richmond, or slung a cricket-bat on Clapham Common. And so a half-a-dozen years pass on like one.

Change upon change. We dismiss one teacher only to take another. We are steadily learning to be a man; and a soft voice, and a gentle winning pair of eyes, help soon to teach us the great lesson. We marry .And there,—there our confessions terminate. The happiest state of man is marriage, if God but please to bless the union.

And what but a glance at Constable's exquisite picture has called up all these desultory ramblings? What but this "View near Hampstead"—so homelike, so beautiful, so thoroughly English—has led us into this indiscreet, gossipping humour? We are almost ashamed of ourself. Indeed, we should be quite, but that this long preface gives us something of a license to go on—just as a man, having set himself up as the wit of the company, is obliged perforce to keep saying funny things to support the character he has assumed.

Well, then, Hampstead! There was a time—the time that we have hinted at, years agone—when we were better acquainted with that neighbourhood than we are now. There was a time when we were never tired of walking over the breezy heath, of treading the Vale of Health, or standing on the hill and looking down upon the great city at our feet, barely distinguishable through its veil of mist and smoke. That time, too, has passed. But still there are recollections clinging to the suburban village which will never die, were its fields built over to-morrow, and its hill and heath taken bodily within the boundaries of giant, insatiable London. Hampstead is classic in its memorials; for here dwelt authors and actors whose very names call up a host of reminiscences. Here Sir Richard Steele had the country house to which he took poor Savage to dinner, when the latter was meditating the publication of his close relationship to the infamous Countess of Macclesfield. From Hampstead Dr. Akenside the author of the "Pleasures of Imagination," removed to Old Burlington-street, Piccadilly, where he died. To this pleasant neighbourhood John Wilkes—who was elected alderman of Farringdon ward, while yet, says Walpole, "a criminal of state and a prisoner"—occasionally retired from his more aristocratic residence in Grosvenor-square. Not far from the heath lived John Gay, the fabulist, and author of the well-known "Beggar's Opera," a piece originally produced, in 1727-8, at the Lincoln's-inn Theatre, at that time under the management of Christopher Rich, whom we may suppose to have been a visitor to Hampstead, together with Colley Cibber, Congreve, Betterton, and Mrs. Bracegirdle, during the poet's residence here. The College of Surgeons now stands on the site of the little theatre in which Gray's great success of sixty-two nights took place. Booth the actor, and Rowe the author, were both residents in Hampstead; as was also Dr. William Sherlock, author of "A Discourse on Death," &c., who not only lived, but died and was buried here. At a public-house on the heath, called the Upper Flask, were held the numerous meetings of the famous Kit-cat Club, of which Pope, Steele, Addison, and other of the wits and authors of the day, were proud to acknowledge their membership. A house in Hampstead, lately the property of James Pilgrim, Esq., is supposed to have been the last in which Sir Harry Vane resided, at the time of the Restoration, previous to his decapitation on Tower Hill, on the 14th of June, 1662; which house was afterwards graced by the occupation for many years of Dr. Joseph Butler, Bishop of Durham, and author of the "Analogy between Natural and Revealed Religion."

To go farther back still, it may be mentioned that Hampstead—originally Homestead—was a manor given by King Ethelred, father to Edward the Confessor, to the Church of Westminster; that at the dissolution of religious houses by Henry VIII., the manor of Hampstead was surrendered into the King's hands by its possessor, the then Bishop of Westminster; that it was given by the King to Sir Thomas Wroth "for special services," in whose family it continued till 1620; that at that period it was alienated to Sir Baptist Hickes, afterwards Viscount Camden; that it remained in the possession of his descendants, who became Earls of Gainsborough, till the year 1707, when the families of Langhorne, Maryon, and Weller—no relative of the Sam of that ilk—became lords of the soil; and that, at the present time, the lordship of the manor belongs to Sir Thomas Spencer Wilson, Bart., in right of his mother, the daughter of J. B. Weller, Esq.

Even from these slight and imperfect memoranda, it will be seen that Hampstead is a place of no mean importance—to say nothing of its once famous mineral springs, "in no wise inferior to those of Cheltenham," writes Mr. Goodwin, a surgeon of Hampstead, in 1802; its beautiful scenery, its handsome church, and its highly salubrious air; and to do nothing more than hint at the fact of the Romans themselves having appreciated its excellent situation—a fact evidenced by the occasional discovery of sepulchral urns, vases, lamps, and other antiquities, in the depths of its soil.

Through all this gossip we have said little of the painting, and nothing of the painter. The first, with its noble trees, its flock of sheep, its corn-field, its drover boy laving his thirst at the clear stream, its patches of sunlight breaking through the watery clouds, its mellow tone and admirable distance—speaks for itself; and for the last, there is, indeed, little to say. The life of a professional man is a mere catalogue of disappointments and successes, blended equally or unequally as the case may be. But we may as well tell the little that there is, and so make an end.

Like Rembrandt and Etty, our artist was the son of a miller; but, unlike the first, he was distinguished by the care and finish of his productions; and as opposed to the second, he made nature rather than the human figure the object of his selection. He was born in the little village of Dedham, in Essex, in the year 1776; and to his early recollections may be attributed the frequent introduction into his pictures of mills, streams, running brooks, and peculiar atmospheric effects. Of his early life we know but little; and it was not till the year 1800 that he was admitted a student of the Royal Academy. That he was not highly successful in his first efforts may be inferred from his residence at this period in America-square, Minories, a not very fashionable place, near Whitechapel, at the east end of London. While living here, however, he exhibited a picture at the Academy, which was as much censured by some as it was admired and praised by others. It contained all the peculiar effects for which he afterwards became so celebrated—moist leaves, deep lights and shadows, and a lowering sky. Indeed, for these effects

he became so well known, that a saying of Fuseli's—"Give me my umbrella; I am going to see a picture of Constable's,"—was at one time pretty extensively circulated. In 1820 he was elected an associate of the Royal Academy, and from this time he continued to paint and exhibit annually those views of home scenery for which he has since become so well known. The scenery and atmospheric effects of the English climate were so thoroughly known to, and so admirably delineated by, Constable, that it is questionable whether any painter since Gainsborough and Wilson has so entirely made himself master of the moods and peculiarities of our variable weather and exquisite landscapes. He is said to have frequently declared that no artist need go abroad for beautiful views, and that on our own rivers, and in our own counties, might be found scenes which would vie in beauty and picturesque adaptation of parts with anything that the rest of Europe could boast. He even went so far as to say that artists who travelled to other countries for effects, did so because they were afraid to encounter those we possessed at home.

Almost every artist is distinguished by three styles: the first an extremely careful, the next a firm and bold, and the last a loose and careless style. An examination of the works of the late royal academician, Turner, will exemplify this. But in the works of Constable an uniformly careful and minute style is discoverable throughout. All his pictures have England for their themes; and, as a thoroughly English painter, he takes a very high stand indeed. His conceptions were all national and all pure; his studies were of nature herself, and his early predilections may be traced through every one of them. In his latter years he inherited a fortune, which made him quite independent of professional gains. He was elected a member of the Royal Academy in 1829. Before his death he retired to Hampstead, to be in daily communion with the beauties of nature; and, much to the regret of the lovers of true art, he died, rather suddenly, at his residence, No. 35, Charlotte-street, Rathbone-place, on the 31st March, 1837.

The picture we have chosen for illustration is in the National Gallery.



VIEW NEAR HAMPSTEAD, MIDDLESEX. FROM A PAINTING BY J. CONSTABLE, R.A.



BAS-RELIEFS IN THE CHURCH OF LA CELLE.

The village called La Celle is situated upon the boundary line of the departments of *Eure* and *Orne*, in the valley of the Rille, in France. The church of this village, which is small, ill-built, and destitute of the graces of style, rises amidst scattered houses and verdant pastures. In itself it is scarcely worthy mention but it has in it a large tablet or slab of alabaster, covered with figures in half-relief, which is not only curious, but ingenious in design, and somewhat clever in execution. Owing to its great

age, and the softness of the material, some of the figures are mutilated, and a few nearly obliterated. These bas-reliefs, like most of those executed during the sixteenth century, have considerable interest, in spite of their imperfect execution. The artist will look in vain for anything approaching to grandeur of design or boldness of imagination; they are, on the contrary, remarkable for a simplicity bordering on childishness, and, occasionally, on the ludicrous. The bas-reliefs now presented to the reader furnish an apt illustration.

At that most interesting period termed the *Renaissance*, or revival of art, though the studios and workshops connected with the monasteries were not wholly uninfluenced by the general progress, yet the artists continued too scrupulously observant of the traditions and the *mannerisms* of former ages. Both objections may be urged against the object under consideration. The draperies are modest and simple in their folds; the expression in the countenances is calm and placid; but the attitudes in general are destitute of vigour, and, in many instances, untrue to nature. There is an absence of anatomical precision, and most of the accessories are stiff and monotonous. In point of design and execution, they bear a near resemblance to the ancient shrines and reliquaries in enamelled jewellery.

It is not necessary here to make many remarks on the *subjects* of these relieved sculptures. Genius and art may be eminently displayed in any subject. It is natural to expect that the subjects selected for illustration would be *religious*, taken either from the Bible or from the history of the Church; but, on most occasions, we find the representations mixed up with much that is legendary, mythological, or apocryphal. This is the case in the sculptures now before us. The *upper* compartment consists of a representation of the sacred Trinity, under which stands the Virgin Mary, surrounded by worshipping angels. In the *next* compartment are representations of the birth of the Virgin Mary; her presentation in the temple; the annunciation; and the birth of Christ in the manger. The *third* compartment represents the adoration of the infant Saviour by the Eastern Magi; and the circumcision of Christ in the temple. Here the narrative breaks strangely off, and the legendary history of St. George commences. The first division represents him as lying ill upon a couch, visited by the Virgin Mary, and attended by angels; and the second represents the same personages conferring upon him the honour of knighthood after his restoration to health. The *fourth* compartment represents his celebrated encounter with the dragon, while the king and queen are looking on from a sort of gallery, and the Virgin is praying for his success. The horse and the dragon, and indeed the whole of this division, must have been drawn by an artist little acquainted with the deeds of knightly enterprise, or even the forms of animals. Next we have St. George in the act of baptising infants; then cited before the judge, at whose feet, curiously enough, a merry-andrew, or buffoon, is playing strange antics, while a dwarf, seated on a high stool, is performing on the violin. The last compartment represents the decapitation of the martyr, in the presence of the judge and a sort of priest, while angels are seen above, bearing his winged soul upwards into heaven.

In nearly all the figures in these bas-reliefs the hands are made conspicuous, and, though thin and dry, they are not destitute of grace. The draperies of nearly all the figures are full, and some of them rather remarkable as to the mode in which they are disposed. The small statues which decorate the niches on each side of the compositions are executed in far better style than the bas-reliefs themselves. The traces of painting are visible throughout the whole, the prevailing colours of the draperies are blue, red, and gold.

These memorials of the past, recovered from ancient monastery or ruined church, are doubly interesting to us as evidences of the progress of art in various ages of the world. Here a sculptured effigy or a blazoned window, there a cross-legged knight upon his tomb, or a dim rusty monumental brass upon a mouldering wall, and elsewhere in buildings dedicated to religious services, the past comes back again to the minds of the curious, bringing with it instruction always. They were an industrious, painstaking race, the artists of old. They loved their art for the art's sake, and in few things does their work show nobler than in the devotion which they hung about God's houses in the world.

THE ELEMENTS OF DESIGN.

The Society of Arts is labouring, with an enlightened and zealous spirit, in its appropriate sphere. They have had for some time under consideration the subject of Elementary Drawing-Schools in our Manufacturing Towns; and, having sent a deputation to Bradford, they have every reason to expect that a good and efficient school will be established there, and, with the aid of the authorities, successfully carried forward. Aiming to facilitate art-education, the Council offered premiums for the best colour-box to be sold retail for one shilling, and the best set of mathematical instruments for the use of beginners in geometry. They have just had the satisfaction of reporting that their efforts have been quite successful.

They have obtained a colour-box containing gamboge, lake, light red, ultramarine, vermilion, indigo, yellow ochre, vandyke brown, sepia, and burnt sienna, with three hair pencils—one large swan-quill size, and two middling-sized—which will be sold by all booksellers for one shilling, and will be found a very considerable reduction on the price of any other boxes of colours of similar quality. A case of mathematical instruments will also soon be ready for students and beginners in geometry, containing a twelve-inch ruler with scales, a rectangular triangle, and a pair of compasses with pen and pencil leg, fitted into a suitable box, which will be supplied retail for 2s. 6d. each; and another case of instruments, for proficients in drawing, has been selected, which will be found very complete and portable, and will be sold at the moderate cost of 6s. The Council trust that the effects of this movement will be so to enlarge the circle of consumers of materials for art-education, that the producers of them will find it to be to their interest to reduce the scale of charges, and thereby obtain increased profits from greatly-increased consumption.

To the Council of the Society, to its Committee for Elementary Drawing and Modelling-Schools for Artisans and Mechanics, and especially to H. Cole, Esq., C.B., and C. Wentworth Dilke, Esq., the public are much indebted for the efforts that have thus been made; and it will afford us great pleasure to aid them in carrying forward this department of their labours. We, therefore, commence with a paper on the Elements of Design, to be followed by others pointing out subsequent steps of the art.

The word design, as employed in the fine-arts, is used in a limited and in a comprehensive sense. In the former case it strictly accords with the Italian *disegnare*, from which it is derived, and means the art of drawing, or representing in lines, the form of any object; and in this sense it is now to be considered. Its higher sense denotes that combination of invention and purpose which enables the artist to compose a group or a picture, without reference to the material in which it is executed. The ancient Greek sculptures display, in the highest degree, the accurate conception of form and beauty, and the designs of their sculptors cannot be surpassed, either in the perfection of physical form, or the invention of appropriate attitudes. In painting, Michael Angelo has obtained imperishable fame for his conception and execution of physical forms, only surpassed by that which the genius of Raphael has achieved. Still the foot must be placed on the lowest round of the ladder if the highest is to be attained. The greatest sculptor and the greatest painter had alike to become familiar with the first elements of art; and hence the due consideration of those on which we have now to dwell is absolutely indispensable.

Design is divided into two parts, "contour" and "shadow." *Contour* is a French word, synonymous with *contorno* in the Italian, and *outline* in the English language. So important was contour considered by Annibale Caracci, that he was accustomed to say, "Give me but a correct outline, and fill it up as you please." Our remarks, therefore, begin with *linear drawing*.

There are three kinds of lines—*straight* lines, *curved* lines, and *broken* lines. The straight line is the shortest course from one point to another; the curved line is neither straight nor broken; the broken line is formed of straight lines, which are not in the same direction.

In the *circumference* of a circle, all points are equally distant from the *centre*. The *radius* is the straight line which, issuing

from the centre, touches the circumference. The *diameter* is the straight line which, passing through the centre, meets the circumference, and divides the circle into two equal parts. Every portion of the circumference is called an *arc*, and the straight line which joins the extremities a *chord*. The circumference is divided into 360 *degrees*, the degrees into 60 *minutes*, and the minutes into 60 *seconds*. The *circle* is the space contained within the circumference. It is desirable so to distinguish between these definitions, as not to confound the circumference with the circle. A *sector* is the portion of a circle contained between an arc and the radii which touch its extremities. A *segment* is the space contained between an arc and its chord.

An *angle* is the space enclosed between two straight lines which cut one another; the straight lines are the *sides* of the angle; the point at which the sides meet is the *vertex* of the angle. There are three kinds of angles: the *right* angle, the *acute* angle (which is less than the right), and the *obtuse* angle (which is greater than the right). When two lines cross one another, and form four equal angles, that is to say, four right angles, these lines are then perpendicular the one to the other. If, on the contrary, they form two acute and two obtuse angles, these lines meet obliquely. *Parallel* lines are those which, situated in the same plane, never meet, whatever may be the distances to which they are prolonged. The most simple of *polygons* is the *triangle*, of which there are several kinds—as the *equilateral* triangle, which has three sides and three equal angles; the *isosceles* triangle, which has only two sides equal; and the *scalene* triangle, of which all the sides are unequal. The *rectangular* triangle has one right angle, the side opposite to which is called the *hypothenuse*. The term *quadrilateral* describes the polygons which have four sides. The *parallelogram* has its opposite sides parallel, but the angles are not right angles. The *rectangle* has its sides unequal, but its four angles are right angles. The *square* has its sides equal and its angles right angles. The *rhombus* has its sides equal, but its angles are not right angles. A *diagonal* is a straight line drawn through a four-sided figure, joining two opposite angles. In the square and the rhombus the diagonals cut one another at right angles. In the rectangle and the parallelogram they are of the same length. Polygons having five sides are called *pentagons*; of six sides, *hexagons*; of eight sides, *octagons*; of ten sides, *decagons*, etc. When a polygon has all its sides and its angles equal, it is called a *regular* polygon.

It is necessary to mark the difference which there is between two *similar* figures and two *equal* figures. Similar figures are those which have equal angles and proportional sides; equal figures are those which have the angles and the sides equal each to each. Every surface on which a straight line may be continued, in every position, is called a *plane surface*, or a *plane*. Lines may be *perpendicular*, *oblique*, or *parallel* to a plane. Planes may also be perpendicular, oblique, or parallel one to another. The *projection* of a perpendicular on a plane is a point. When two planes cut one another, the points common to the two planes form a straight line which is called their *intersection*.

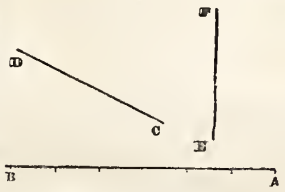
Bodies, which unite the three geometrical dimensions, are known by the name of solids. *Polyhedrons* are bodies bounded by planes; the *prism* is a polyhedron, formed by several plane parallelograms, and two plane, equal, and parallel polygons. In the *truncated prism*, the polygons are neither parallel nor equal. *Pyramids* are formed by several triangular, quadrangular, or polygonal planes, according to the shape of their base. The perpendicular, let fall from its apex to its base, is called the *axis*, or height of the pyramid.

By making a rectangle turn round one of its sides, a figure is generated, which is known by the name of a *cylinder*. According as the line around which the revolution is made is perpendicular or oblique, the cylinder is said to be *right*, or *oblique*. The *base* is always a circle. The right *cone* is the revolution of the rectangular triangle around one of the sides which form the right angle. The *cube* is a solid, and all the six sides of it are square. The solid of six sides, two of which are parallelograms, is called a *parallelopiped*.

We shall conclude this series of definitions with the *sphere*, which is a globe, every point on the surface of which is equally distant from the centre. The straight line from the centre to the surface is called a *radius*. Two radii, united in a straight line, form the *diameter*.

1. Draw a horizontal straight line, B A; fix the length of the horizontal, and prove if it is of the required size (Fig. 1).

Fig. 1.



2. Draw a vertical straight line, E F (Fig. 1).

3. Draw an oblique straight line, C D (Fig. 1).

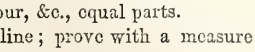
4. Divide the line A B into six equal parts, a hundred equal parts, &c. (Fig. 1.)

5. Divide a line into two, three, four, &c., equal parts.

6. Find out the length of a given line; prove with a measure that there is no mistake.

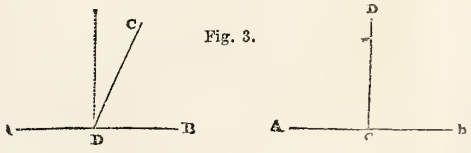
7. Draw a parallel, horizontal, vertical, or oblique line (Fig. 2).

Fig. 2.



This operation is very often repeated in sketches from nature and the construction of planes; it is, therefore, of the utmost importance to be able to draw these easily.

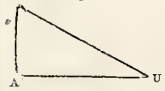
Fig. 3.



8. Draw a perpendicular, D C, to a horizontal line, A B (Fig. 3). See if the angles, A C D, B C D, are right angles, by means of the square.

9. Draw a right angle, A C D; an acute angle, C D B; and an obtuse angle, C D A (Fig. 3).

Fig. 4.



10. Draw a rectangular triangle, Q A U which has a right angle (Fig. 4).

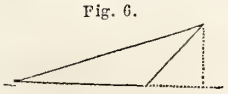
The letter which marks the vertex of the angle is always placed in the middle of the three, thus—not A Q U, but Q A U (Fig. 4).

Fig. 5.



11. Draw an isosceles triangle, which has two sides and two angles equal (Fig. 5).

Fig. 6.



12. Draw a scalene triangle, which has its three sides and its three angles unequal (Fig. 6).

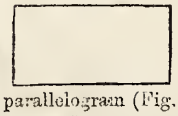
13. Draw an equilateral triangle, which has its three sides and its three angles equal (Fig. 7).

Fig 7.



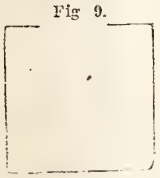
The height of the triangles is indicated by letting fall a dotted perpendicular on the base. In the right-angled triangle the perpendicular is one of the sides of the triangle (Fig. 7).

Fig. 8.



If the perpendicular falls without the base, we must continue the latter till the two sides intersect one another (Fig. 6).

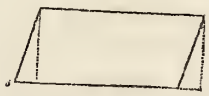
Fig 9.



14. Draw a right-angled parallelogram (Fig. 8).

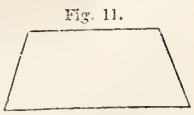
15. Draw a square (Fig 9), or a right-angled parallelogram with equal sides.

Fig 10.



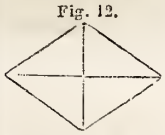
16. Draw an oblique parallelogram, which has its four sides opposite, without having its angles right angles (Fig. 10).

Fig. 11.



17. Draw a trapezium (Fig. 11), two of whose sides only are parallel.

Fig. 12.



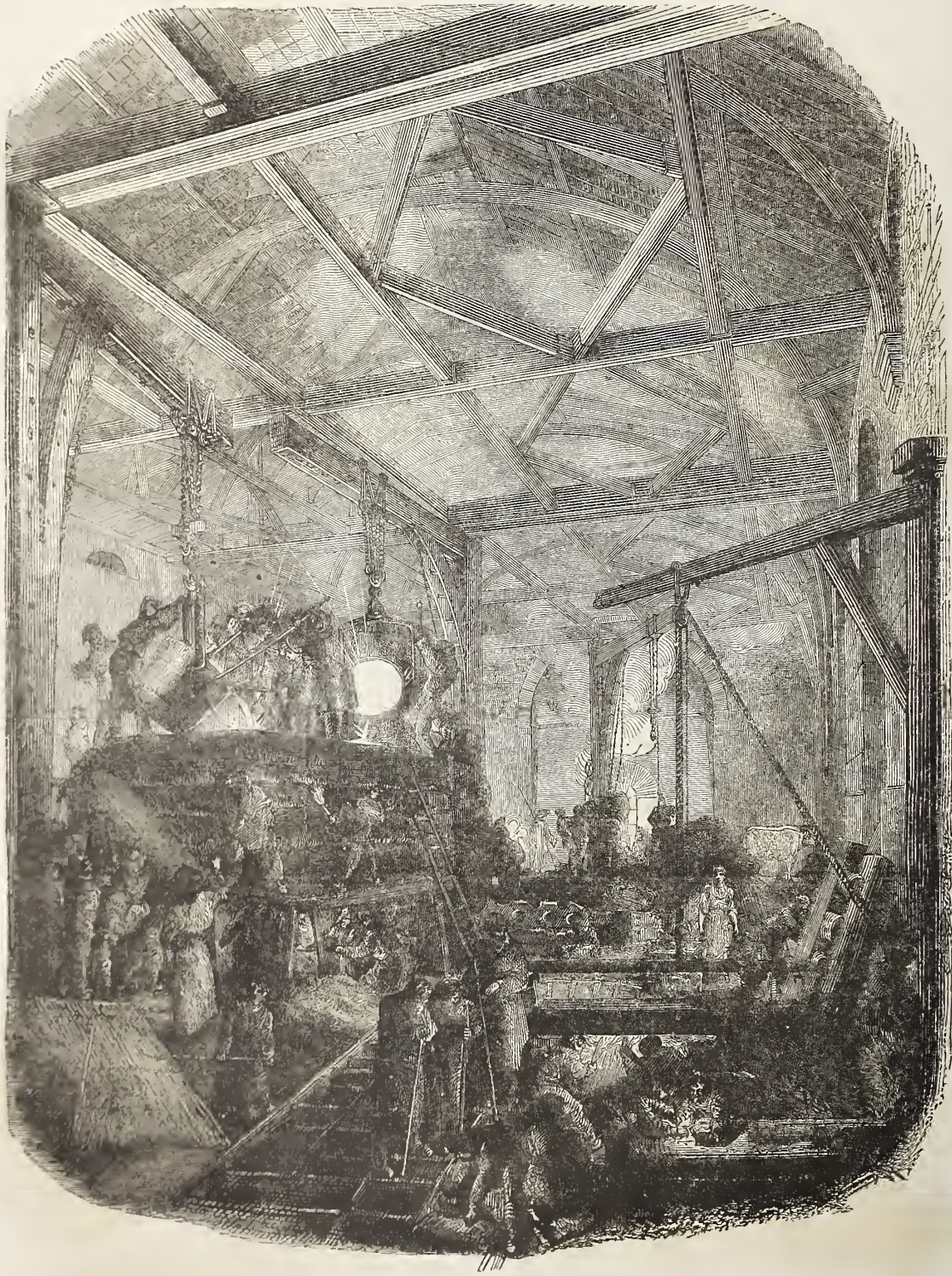
18. Draw a rhombus, which has its four sides equal, without having its angles right angles (Fig. 12).

In all these quadrilateral, or four-sided, figures, diagonals should be drawn. The intersection of the two diagonals in the right-angled quadrilaterals is the centre of the figure.

(*Continued on page* 142.)

IRON FOUNDING.

All the triumphs of art are but the extension of man's dominion over the material world. First to attain to the knowledge of the properties of the elements of which our earth is composed, and then to mould or combine them into whatever forms may prove most serviceable to mankind, are the objects towards which all the efforts of science are directed. Every year men are astonished at all they have done; and as every discovery is but an additional instrument for the achievement of greater ones still, the rapidity of our progress outstrips all the calculations, and even all the dreams, of past ages. Chemistry is a science of comparatively recent growth: it is not yet half a century since the genius of Davy made it the theme of the learned and the idol of fashion. But, notwithstanding all that he achieved in it, his labours seem now to have done little more than reveal to his successors the vast extent of the field which still remained unexplored. It is to men of our own day that the honour belongs of applying it to the arts



IRON FOUNDRY.

and working a total revolution in nearly all the branches of material industry.

Few of these have recently made greater advances than iron-founding. The working of a large foundry is, perhaps, one of the most striking spectacles in civilised life. The fusibility of metals is one of those properties from which mankind have reaped the greatest advantages. Works which, if attempted by means of hammers. When cast, also, it shrinks less in cooling than most other metals; and consequently, notwithstanding its apparent coarseness, it is capable of receiving and retaining impressions of the utmost delicacy and minuteness. The small ornaments, clasps, buckles, vases, statues, &c., of which so great a variety were to be seen at the Exhibition, and which are generally known as Berlin work, are evidences of its adaptability to all the purposes of art.

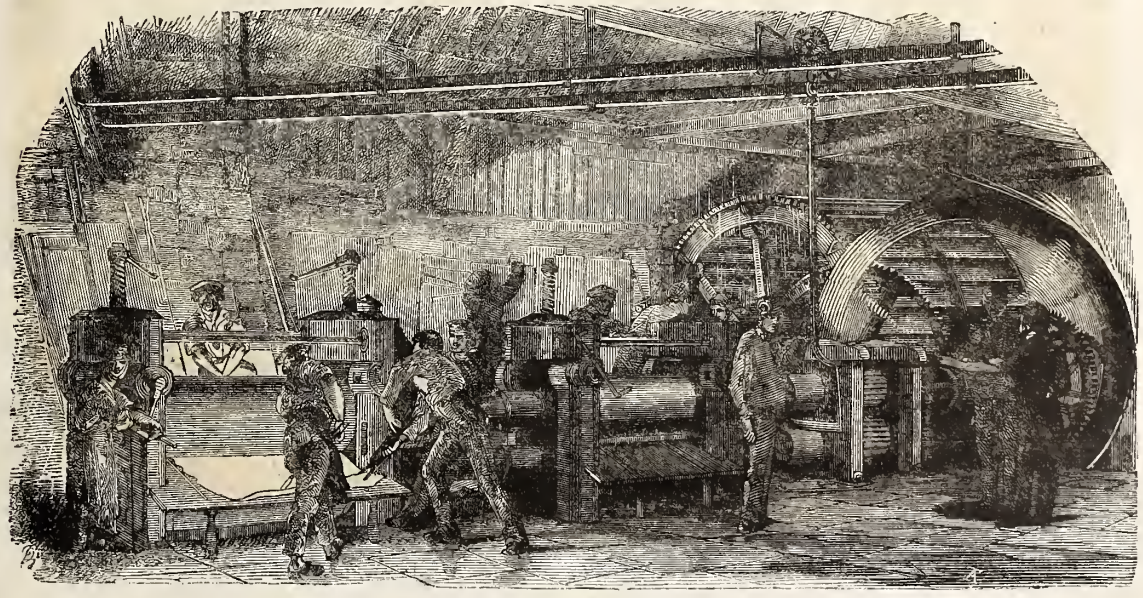


FURNACE FOR RE-MELTING PIG IRON.

the anvil, the hammer, and the file, would have required years of labour, are accomplished in a few minutes by casting, in the highest state of perfection. The art of moulding bronze and iron, too, appears to have been known at an early period of antiquity, but it is only in our own day that it has taken its place amongst the most useful branches of industry.

But iron has now almost entirely superseded bronze as a material for ordinary purposes of utility. Its greatest advantage over bronze and copper lies in its greater cheapness, and to such a degree has this reached, that in many important works, such as bridges, for example, it has begun to take the place of wood and stone. It also possesses extreme hardness, and is consequently extensively used in the manufacture of articles liable to great wear from friction, such as the cylinders of steam-engines, &c., and for the same reason it is preferred for stamps, anvils, and

Many of these were enriched with reliefs such as the graving-tool could produce only by a prodigious expenditure of time and labour; and if they are not held in much estimation, it is because their cheapness has rendered their acquisition too easy to allow them to prove the means of gratifying the vanity of the wealthy. But they are not, for this reason, less worthy of the admiration of all lovers of art, for no other metal could receive in moulding so exquisite a finish. The same substance, strange to say, which furnishes the terrible rows of guns which fill our batteries, and line the decks of our vessels, and which form the cylinders of the monster steam-engines, by the same process, can be moulded into



FLATTENING MACHINERY.

rings, statues, and vases, which surpass the best works of the goldsmith in all but their value and brilliancy.

Although, in a great number of foundries, the iron is cast immediately on its issuing from the blast-furnace, this does not answer

for works on a large scale, they cannot furnish materials for the employment of many hands; but in some of the great seats of industry there are foundries which receive the productions of the blast-furnaces scattered over the country for the purpose of casting them over again. This is, in many respects, however, a process attended with disadvantage, from the loss of a portion of the iron by oxidation, and the great expense of the fuel necessary to melt it: but some compensation is afforded by the possibility of working on a great scale.

The blast furnace, it may be necessary to explain, is intended to change the iron ore into what is called "pig-iron." The pig-iron is the material out of which *iron* and *steel* are made. The transformation which takes place in the process may be readily understood. The ore, as it is dug from the mine, is a combination of iron with oxygen gas, which is diffused through the air, and is the great supporter of life and combustion. Oxygen has a great tendency to unite with iron. The ordinary rust is nothing more than the combination of oxygen with the metal. But great as this tendency is, the tendency to unite with carbon or charcoal, under the influence of strong heat, is still greater. When, therefore, the iron ore is placed in the blasting-furnace, the oxygen which was in combination with the iron deserts it to combine with the charcoal. The iron thus left in rude masses is the pig-iron. The process when the ore contains foreign substances is, of course, more complicated, but our space will not permit us to enter into it.

It is now ready to be cast into the form which it is intended finally to assume. Two different sorts of furnaces are employed in casting. The first are called *cupola* furnaces, the interior of which is almost cylindrical, and terminates at the bottom in a sort of trough. Their height varies, according to the extent of the foundry, from six to seven feet. The fire is kept up by a blast-pipe, or bellows, and within the iron and charcoal are placed in alternate layers. There is usually a considerable number of furnaces of this kind, in order to furnish a sufficient quantity of molten iron for the casting of large articles. But, generally, when the piece of work to be undertaken is of large size, *reverberatory* furnaces are employed. These are furnaces in which the iron and the metal to be cast are separated. A coal fire is lighted in a grate, and the metal is placed at one side upon a sort of platform. The fire and all is covered over by a vaulted roof, and from this the heat is reflected strongly upon the metal—hence the name.

When it is completely fused, it is suffered to escape into a sort of trough, and is thence conveyed in buckets to the moulds. These are usually of sand, which sometimes contains a mixture of chalk, and at others it is quite pure. The former has greater hardness and adhesiveness than the latter, and is used where the mould must support great weight. When pure sand is used, great care is taken to prevent its giving out its moisture; as, in case it becomes dry, it loses all solidity; and for this reason the mixed sand is generally made use of in casts which require accuracy.

When the impression is to be taken on one side only, as in the case of the plates of fire-places, the molten iron is simply poured into the mould, and the operation completed without difficulty. But when the object has to be moulded round, the labour is much greater. The mould is then divided into two parts, and the workman is obliged to take care that the two sides fit exactly when they come to be screwed together. Various modifications of this process are adopted to suit the greater or less delicacy and fineness of the design on the article, but which want of space will not permit us to describe.

Our engraving may serve to convey to the reader a good idea of a large foundry. At the farthest end may be seen the furnace. The founder is preparing to stop up the taphole, and the others are hastening to fill the cauldrons and buckets with the fiery liquid. A number of cranes overhead communicate with one another by turning on their axes. These cranes carry the cauldrons, suspended by chains, from the sort of small vehicle which runs freely upon its upper arm. In our engraving there are three of these cranes, the first of which is placed within reach of the furnace; the other is in the foreground. The workmen are engaged in casting large pieces, probably the felloes of a fly-wheel, and are standing around the edge of the mould pouring in the liquid out of the cauldron, which they turn over by the help of iron bars. Others run around it above and below, and set fire to the gas, which escapes through the insterstices caused by the wood, which is inserted to give consistency to the mass of sand. At the foot of the crane are five men turning the wheel, to direct the cauldrons to their appointed place. The foreman, with his back to the spectator, has his hand raised, as if in the act of giving orders to the workman. In the foreground a man is passing the sand for moulding through a screen. On one side is a sort of frame, divided into a great number of compartments, and, when the stream of iron is directed into it, a great number of pieces will be formed from the single jet. Three workmen, armed with a sort of pestle, are occupied in breaking up the sand placed around the models in the compartments.

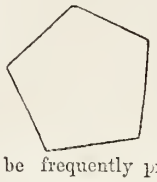
Our second engraving represents the process of re-melting the pig-iron, and effectually separating it from all foreign substances. The furnaces in this case are heated with coke, in the manufacture of which great care is required, to preserve its purity.

The third engraving shows the iron under the action of the "flattening mills," by which it is rolled out into plates in a finished state, ready for application to any required purpose.

THE ELEMENTS OF DESIGN.

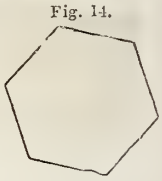
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Fig. 13.



19. Draw a regular pentagon (Fig. 13), which has five sides and five angles equal.

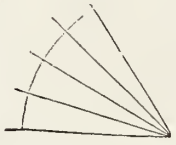
Fig. 14.



20. Draw a regular hexagon, which has six sides and six angles equal (Fig. 14).

All the figures now given are very simple, and should be frequently practised. It will be well to delay, till this is done, the drawing of irregular figures.

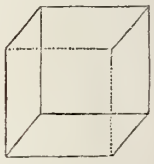
Fig. 15.



21. Divide an angle into two, three, and four equal parts.

22. Double or quadruple a given angle (Fig. 15).

Fig. 16.



23. Draw a right-angled parallelopiped, (Fig. 17), and an oblique-angled parallelopiped (Fig. 18.)

Fig. 17.

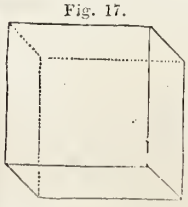


Fig. 18.



24. Draw a cube (Fig. 16).

Fig. 19.

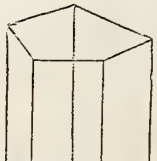
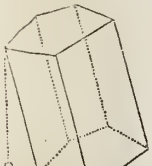


Fig. 20.



25. Draw some prisms (Figs. 19, 20, 21, 22, 23).

Fig. 21.



Fig. 22.

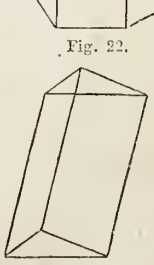
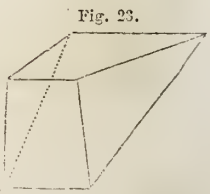


Fig. 23.



26. Draw some pyramids with triangular, quadrangular, and pentangular bases (Figs. 24, 25, 26).

Fig. 24.



Fig. 25.



Such are the different figures which may be described by means of the straight line. After the pupil has familiarised himself with them, it will be well for him to double, treble, or divide them into several equal or proportional parts.

Fig. 26.

27. Draw a circle (Fig. 27).

Fig. 27.

Fig. 28.

28. Determine the centre of a given circle (Fig. 30).

Fig. 30.

29. The centre and the radius of a circle being given, to construct a circle (Fig. 30). We cannot urge pupils too strongly to practise frequently the drawing of this figure. It is done by means of compasses.

Fig. 29.

30. Divide a circle into three, five, seven, &c., equal parts (Fig. 27).

31. Divide a circle into four, six, eight, &c., equal parts (Fig. 30).

32. Describe an arc of a circle, and draw tangents to a circle (Fig. 28).

33. Inscribe some regular polygons in a given circle (Figs. 30 and 27).

34. Circumscribe a regular polygon about a given circle.

35. Describe concentric and equidistant circles (Fig. 29).

Fig. 31.

36. Draw circles touching one another externally (Fig. 31).

37. Draw circles touching one another internally (Fig. 31).

38. Draw a tangent to two given circumferences (Fig. 31).

Fig. 32.

Fig. 33.

39. Draw some right cones (Fig. 32).

40. Draw some oblique cones (Fig. 33).

41. Draw a truncated right or oblique cone (Figs. 32 and 33).

42. Draw some right cylinders (Fig. 34).

43. Draw some oblique cylinders (Fig. 35).

Fig. 34.

Fig. 35.

44. Lastly, draw a sphere, and subdivide it into zones by parallel circles, or into segments by meridians (Figs. 37, 38).

Now, it is by an union of all these lines that we are able to represent every imaginable form. Whatever the kind of drawing may be, it is easy to perceive, after the preceding remarks, how important it is to study *linear* drawing before undertaking drawing from *nature*.

Fig. 36.

Fig. 37.

Fig. 38

Before entering on the second part of linear drawing, it will be well to offer some advice which may aid the progress of pupils; we purpose, therefore, speaking of the method of procedure when the object which it is wished to copy is before the eye.

It is impossible to include, at a single glance, the *tout ensemble* and the *details* of any scene. Method is therefore necessary in depicting it, and we must begin with the mass before the smallest detail is touched. If this important precaution be neglected, we may be certain, beforehand, that the drawing will be faulty in the general, and unpleasing in its character.

We are about to give an idea of projections by pointing out the most useful principles of this department of science. The object of the theory of projections is either to represent all the external forms of bodies on a plane, or to resolve on plane figures which represent them diverse problems, as might be done on the bodies themselves.

Fig. 39.

The foot of the perpendicular, let fall from a point to a plane, is called the projection of a point on a plane (Fig. 39).

Any line whatsoever, straight or curved, being composed of points, its projection is the line which unites the feet of all the perpendiculars let fall from the different points of the line. If the plane of the projection is horizontal, this projection will be called horizontal. If it is vertical, the projection will be called vertical. There is no difficulty, then, in understanding that the union of two projections gives the position of the line in space, since it is the intersection of the projecting planes if it is straight, and the intersection of the projecting cylinders when it is curved.

The position of a line in space not being determined by a single projection, we must have recourse to two; but as a leaf of paper is a single plane, it may be supposed that the vertical plane falls upon the horizontal plane by turning round their point of intersection, which is called a ground-line. It is very important to become familiar with this idea; for often, in the construction of certain problems, it is needful to re-establish the real position of the object.

Fig. 40

It is easy to conclude, from the very definition of projections, some very simple and constantly-recurring propositions: we confine ourselves now to the enunciation of them.

Every prism or cylinder raised perpendicular on a plane, is projected according to its base, as well as all the figures traced on its surface. Every straight or curved line, but parallel to the plane of projection, is equal to its projection on this plane (Fig. 40).

The next article on drawing will be on PERSPECTIVE.

THE RAILWAY TRAIN.

POESY is creation; whose planned
Railways—the mighty veins and arteries,
And telegraphic wires, the nerves of nations,
And fiery engines rushing o'er the land
Swifter than flight, or ploughing through the seas
'Gainst wind, and tide, and elemental strife;
Promethean spirits, conquering time and space,
And quickening all the pulses of their race
Throughout one vast organic globe of life,
Made rich by them with wonderful creations
Such as the opiate fancy never dreamed,
Even in Araby—*poets* should be deemed,
If any should; for poetry is "making"
As well as writing—to be seen no less than said.

Lo! here is poetry—the Railway Train
First the shrill whistle, then the distant roar,
The ascending cloud of steam, the gleaming brass,
The mighty moving arm; and on amain
The mass comes thundering like an avalanche o'er
The quaking earth; a thousand faces pass—
A moment, and are gone like whirlwind sprites
Scarce seen; so much the roaring speed benights
All sense and recognition for a while;
A little space, a minute, and a mile.
Then look again, how swift it journeys on—
Away, away, along the horizon
Like drifted cloud, to its determined place;
Power, speed, and distance melting into space.

SWISS NEEDLEWORK.

To vary as much as possible our descriptions of needlework, we have selected a picture which was exhibited at the Crystal Palace, by Mr. F. U. Tanner, of Bühler, in the canton of Appenzall, Switzerland. It represents a peasant-girl sitting at her cottage-door with an embroidery-frame in her hand, at which she is employed in painting with her needle—if the expression be allowed—a portrait of William Tell, the beloved hero of Switzerland. In the back ground is seen a village, with its little stream and trees in front, and a mountain-peak behind. The border is composed of various scenes in the neighbourhood: the cottage under a rock, with the chamois wandering among the declivities; a Swiss church, bridge and stream; and a view of the village of Bühler, in which the exhibitor resides, the whole forming an excellent copy of a line engraving. It is executed in black and white silk on a neutral-coloured ground, also of silk, the various lights and shades being produced by means of a greater or lesser number of stitches. The method of producing needlework pictures of this description is very simple. Having provided a piece of white or light grey silk the size of the engraving to be copied, it is stitched on a frame, and the picture worked upon it in the ordinary embroidery stitch. Of course the number, length, and variety of the stitches must depend greatly on the nature of the subject. Skies are produced by a series of long parallel stitches attached to the back-ground here and there, just sufficiently to keep them tight; and in some instances it is necessary to work one stitch over another, in order to obtain the requisite depth of colour. In trees, flowers, and so on, the radiation of the stitches must be carefully attended to, and in some parts of the work it will be found necessary to make a number of short stitches cross and re-cross each other, in order to produce the appearance of what the engravers call cross-hatching. This kind of work will be seen in the lower part of the girl's dress. The ornamental parts of the border are easily copied, and the ordinary needle alone is required for work of this kind. If carefully performed, "print-work," as it is called, is very beautiful, and the quality of it is estimated entirely by the amount of difficulty in producing the different lights and shades. No knowledge of drawing is requisite; in act, all that has to be done—and that is quite tedious enough sometimes—is to produce an exact *fac simile* of the engraving required. Of course any variety of colours can be introduced; but it must be remembered that the surface of the whole must be kept as smooth and flat as possible.



PICTURE IN SWISS NEEDLEWORK, AFTER THE MANNER OF A LINE ENGRAVING.

This kind of work is very much pursued in the eastern parts of Switzerland; and in the canton of Neufchâtel there are employed upwards of 3,500 females in hand-embroidery alone, the principal part of which is for exportation. No fewer than forty-five manufacturers from various parts of Switzerland exhibited needlework, embroidery pictures, worked handkerchiefs, sewed muslins, and such-like productions of female industry.

ANCIENT NINEVEH.

Is it true that the light from some of the more distant fixed stars takes ages multiplied by ages to reach this our earth, and that what we see are not the bodies as they now exist, but as they existed some thousands of years ago? All science is thus carrying us into the past. Geology has made us acquainted with a pre-adamite earth, and various forms of organised being as peculiar to that earlier world. What was considered as nothing more than so much gold-dust scattered on the black ground of the heavens, our modern astronomy has resolved into a field of suns and systems, whose mingled light goes to make up so many splendid constellations, and whose date is to be found far down in the depths of a past eternity. Nor this only. The recent discoveries of the site and ruins of ancient cities, enable us to walk their streets, and leisurely view those palaces in which lived and luxuriated some of the mightiest princes that ever impressed the soil of this our world, the temples in which they worshipped, the tombs in which they were buried, and the monuments which were reared in memory of their deeds and of their name. We find ourselves in the immediate neighbourhood of the hanging gardens, and of those marvellous structures which tradition has referred to a very remote antiquity. Our knowledge is likely to be rectified and enlarged concerning a people who were supposed to have left behind them no trace of their historical life. These ruins will henceforth testify, not only to the fact of their existence, but to their progress in civilisation, in intellectual culture, in physical science, and in artistic skill.



DESIGNED BY GILBERT.] LAYARD'S DISCOVERIES AT NIMROUD. [ENGRAVED BY H. LINTON.

France and England divide the glory of having rescued from the underground darkness and oblivion of twenty-five centuries, some of the most magnificent remains of the old world. Many a traveller's foot had pressed those mounds which are found on the banks of the Tigris, but it was reserved for M. Botta and Dr. Layard to discover the treasures which they concealed. They prosecuted their researches with exhaustless patience and perseverance; and though the story of the people which once inhabited these cities of renown, is to be read in bricks, and stones, and slabs, and bas-reliefs, and monumental inscriptions, yet, as our distinguished countryman observes, "there could have been no more durable method of preserving the national records: the inscribed walls of palaces and rock tablets have handed down to us the only authentic history of ancient Assyria;" while by the discoveries of himself and others, the intention of those who founded that great empire "will be amply fulfilled, and the records of their might will be more widely spread, and more effectually preserved by modern art, than the most exalted ambition could have contemplated."

Nineveh, the capital of Assyria, was situated on the eastern bank of the river Tigris, opposite the present town of Mosul, about two hundred and eighty miles north of Babylon, whose rival it was, but of much larger dimensions. It was about twenty miles in length, twelve in breadth, sixty in compass, and took three days' journey to perform its circuit. It was surrounded by walls a hundred feet high, and so wide that three chariots could drive abreast upon them, and was fortified by fifteen hundred towers of two hundred feet in height, while the population exceeded six hundred thousand. This number is small compared with the inhabitants included in the metropolis of either England or France, and yet neither Paris nor London occupies one-fourth of the space on which Nineveh stood. It is probable, therefore, that a large portion of the ground was occupied with gardens, and parks, and vineyards, and fields for pasturage. Its grandeur was equal to its size. Even at that early age, architecture had attained to high perfection, and its productions were on a gigantic and magnificent scale. Science and art had combined to create a place of commanding elegance, while in wealth and luxury it rose to the highest point.

The whole current of tradition leads us to Nimrod as the founder of this great city. He was an immediate descendant of the patriarch Noah, and a man of rare courage and enterprise. His successful pursuits in the chase marked him out as one peculiarly fitted to sustain the duties and responsibilities of government; and having obtained for himself a name in the earth, he left the land of Shinar, where he first founded his dominion, and went into Assyria, and builded Nineveh, the city Rehoboth and Calah, and Resen between Nineveh and Calah. Such is the simple record of the Book concerning the man whose name is inseparably associated with one of the earliest settlements of the human race. But here Revelation leaves us. Scripture is all but silent on Assyria and the Assyrians, till we come comparatively near to the reign of grace—or, as Layard says, "until the period when their warlike expeditions to the west of the Euphrates brought them into contact with the Jews. Pul, the first king whose name is recorded in Scripture, having reigned between eight and nine hundred years before the Christian era, and about two hundred previous to the fall of the empire, must have been nearly the last of a long succession of kings who had ruled over the greater part of Asia. The later monarchs are more frequently mentioned in the Bible on account of their wars with the Jews, whom they led captive into Assyria. Very little is recorded even of their deeds, unless they particularly concern the Jewish people." Then if we come to profane history, it has no record of a date so far back as the foundation of the Assyrian empire. The account ascribed to Herodotus is irrecoverably lost; while the testimony of later writers is to be taken with so much reserve and limitation, that it is like the effort to trace the channel of the mind which the waters of the rolling wave have ploughed and washed out for ever. With the exception of a few royal names, and some of those of doubtful origin, we have nothing in the former worthy of the name of authentic history. Ninus, Semiramis, and Sardanapalus, are names familiar to every schoolboy in the land. Of the expeditions of the first, and the magnificent deeds of the second, and the profligacy of the third, he has read in his common school-history, but what does he know of Assyria and its far-famed capital? What does any one know? Strange, indeed, that "the records of an empire, so renowned for its power and civilization, should have been entirely lost; and that the site of a city as eminent for its extent as its splendour should for ages have been a matter of doubt. It is not perhaps less curious that an accidental discovery should suddenly lead us to hope that these records may be recovered, and this site satisfactorily identified."

It is to the Sacred Writings that we must turn for all our knowledge of this famous city, from the time of Pul, the first king of Assyria, who invaded Canaan, till the final overthrow of Nineveh. Scripture sets us down in the midst of that city when it had reached the height of its glory and the extreme of its crime. Wealth, luxury, and idolatry, were all so many causes of its overthrow. The sins and crimes of the people pointed to heaven as conductors to attract the lightning of divine vengeance. But judgment slumbered. Mercy triumphed over justice. A divinely-commissioned prophet was sent to warn them of their danger, and lead them to a timely repentance. His representations and pleadings were not without effect; and for one hundred and fifty years the impending stroke was averted. Nineveh would have been spared had her repentance been sincere. The lightning which played on the edge of the dark cloud retired, and would never have left that dark-bosomed cloud, had not the people fallen back into their former habits and pursuits. They sunk deeper than before in moral pollution, and then another of God's true speakers was sent to foretell the overthrow of the city and the empire. The preparations for the destruction, and the destruction itself, he paints in the most vivid colours. He calls on Nineveh to prepare for the approach of the enemy; while the military array and muster, the very arms and dress of the Medes and Babylonians—their rapid approach to the gates—the process of the siege—the inundation of the river—the taking of the place—the captivity, the lamentation, and the flight of the inhabitants—the sacking of the city—the bearing away of its treasures—together with the consequent desolation and terror—are all set forth under the sublimest and most impressive images, and in the true spirit of Hebrew poetry. There was an old tradition that Nineveh should not be taken till the river Tigris, which defended part of the city, should become its enemy. Now it so happened that, in the third year of the siege, it became so swollen by continued rains, that it overflowed part of the city, and threw down a considerable portion of the wall. The king, thinking that the oracle was fulfilled by this inundation of the river, and giving up all hope of future safety, lest he should fall into the enemy's hands, built a large funeral pile in the palace; and having collected all his gold and silver, and royal vestments, together with his concubines and his eunuchs, set fire to the pile; and thus involved himself and them, and the whole palace, in one common ruin! When the fate of the king was made known by certain deserters, the enemy entered by the breach which the waters had made, and took the city. So vivid is the description given by the prophet of their entering the devoted city, that you fancy you hear the whip cracking, the horses prancing, the wheels rumbling, the chariots bounding after the galloping steeds; or that you see the reflection from the polished swords and the glittering spears, like flashes of lightning dazzling the eyes; while the slain or the dying are lying in heaps upon the street, and the horses and the chariots stumbling over them. Even her rulers and her tributary powers came not to her help or succour. Those who ought to have espoused her cause, went over to the side of her besiegers. Her numbers, her wealth, her mighty men, availed her not. She became faint-hearted and feeble, and her strongholds were taken with ease. She is in the hand of the enemy: her desolation is complete. The prophet himself is moved to tears by her condition, and, in a tender and beautiful allegory, represents her as an illustrious princess, led away into captivity, attended by her maids of honour, who bewail her and their own calamity by beating their breasts and tearing their hair, in token of grief deep and inconsolable, while the nations whom she had oppressed are seen and heard exulting with joy over her fall.

The overthrow of this great city took place about six hundred years before the evangelical era; and in the second century there was not a single monument of it remaining; nor could

any one exactly determine the spot on which it stood. Till a very recent period it was conceived that its site was never to be known—that this eternal oblivion of the very place was part of the sublime prediction. Bishop Newton went so far as to believe that the ruins on the eastern shore of the Tigris—the very ruins on which Layard has been working with so much enthusiasm—are the ruins of the Persian Nineveh, and not of the Assyrian; and that the ruins of the old Nineveh had long ago been ruined and destroyed. This pleased the sceptic and the infidel. Taking advantage of the concession of the learned prelate, and of others who have assumed the same ground before him, and well knowing that there was no authentic history to which to appeal, they at once resolved the sacred narrative into a myth—a creation of the fancy—a mere fiction—and thus sought to set aside the whole of divine Revelation. All doctrine rests on facts, and facts are the very *materiel* of history. Reduce the histories to mere fiction, and the book goes for nothing. But facts are immutable, and it is on its facts that the Bible rests its lofty claim. How wonderfully are its statements verified and confirmed by the progress of time, and science, and discovery! Not that the Revelation of God stands in need of any outward evidence to attest its truth. A man has only to refer to his own moral consciousness to be convinced that it is true. But



Fig. 1. BUST OF A WARRIOR.

if men will appeal to external proofs, then every day is multiplying these proofs. It is no longer necessary to ask the same amount of faith, for faith is being more and more converted into sight. Not only can it be proved that there was such a city as Nineveh, but it is rising up again before our eyes; and by the time that one traveller has completed his researches, and another has deciphered the inscriptions which are so mysteriously written on the ruins, the history of that city will so harmonize with the sublime predictions of the inspired Scriptures, that the infidel will be struck dumb. Our distinguished countrymen do not positively affirm that they have so mastered the characters in which these inscriptions are written, as to give a literal and perfect translation of any one record, or to make it incontrovertible that they are exploring the palaces and temples of the old Assyrian capital. This is the modesty common to all truth-loving and truth-seeking men. But so far as they have gone, they are inclined to believe that all the ruins explored represent the site of the ancient Nineveh, and that by the time they have completed their labours, each fragment and each inscription will go to establish the identity of those remains with the city which Nimrod founded, and which Nabopolossar destroyed.

It appears that rather more than thirty years ago some attempts were made to explore these ruins by Mr. Rich, who was for many years the political resident of the East India Company at Baghdad. He first examined the remains near Hillah, in the neighbourhood of his own residence, in which he found fragments of inscriptions, a few bricks and engraved stones, and a coffin of



Fig. 2.

wood. He then visited Mosul, and was attracted to the opposite side of the river by the report of certain pieces of sculpture having been dug up in one of the mounds there; but he could not

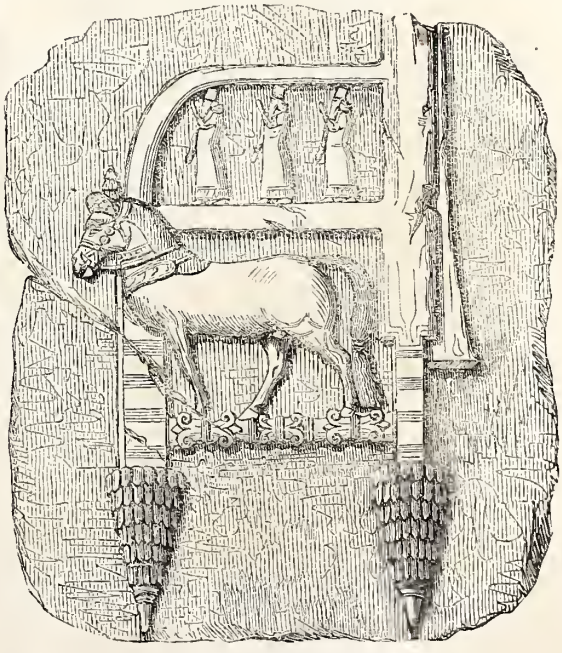


Fig. 3. THRONE.—(*See page* 154.)

obtain even a fragment of it. After visiting the village containing the tomb of Jonah, he next examined the mound known by the name of Kouyunjik, but found only a few fragments of pottery; so that, "with the exception of a small stone chair, and a few remains of inscriptions, he obtained no other Assyrian relics

from the site of Nineveh; and he left Mosul, little suspecting that in the mounds were buried the palaces of the Assyrian



Fig. 4 A KING.

kings." And will it be believed that these few fragments, which were subsequently deposited in the British Museum, formed almost "the only collection of Assyrian antiquities in Europe?



Fig. 5.

A case scarcely three feet square inclosed all that remained, not only of the great city of Nineveh, but of Babylon itself."

What was wanted to follow up these limited researches was some truly enterprising spirit, with means and men at his command. He already existed. Dr. Layard, who had been wander-



FIGURE WITH EAGLE'S BEAK. Fig. 6.

ing through Asia Minor and Syria, during the autumn of 1839 and the early winter of 1840, "felt an irresistible desire to penetrate to the regions beyond the Euphrates," rightly judging that



Fig. 7.

without treading on the remains of Nineveh and Babylon, his pilgrimage would not have been complete. He left Aleppo on

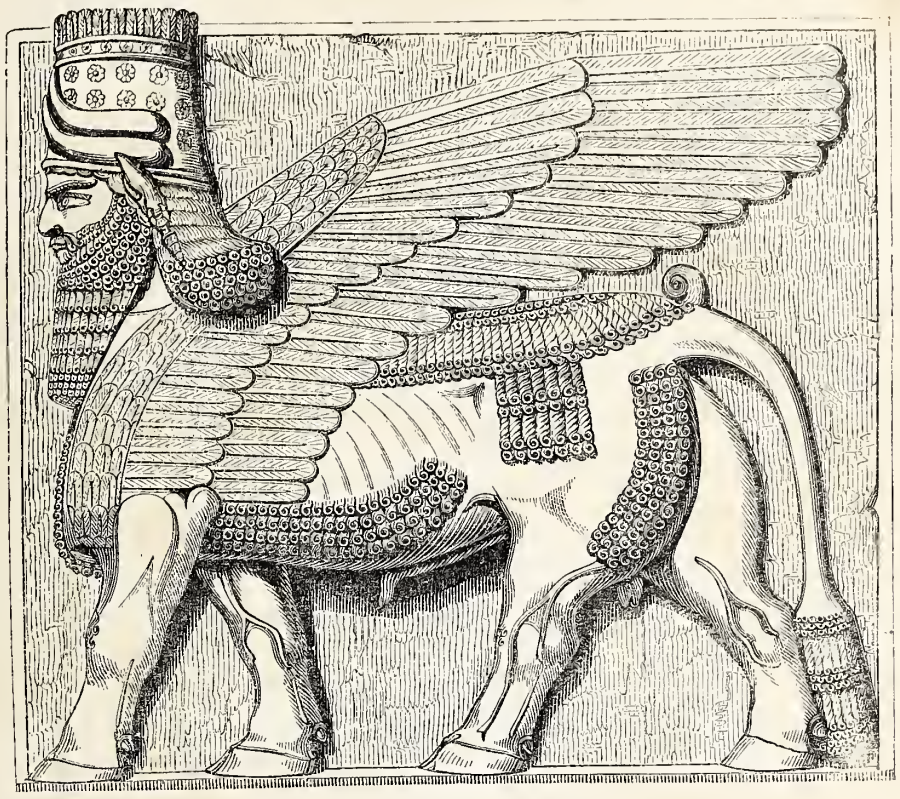


Fig. 8. WINGED BULL.—(*See page* 151.)



Fig. 9. BAS-RELIEF.—(*See page* 152.)

the 18th of March, and entered Mosul on the 10th of April. In the middle of the same month, he left Mosul for Baghdad, and as he descended the Tigris on a raft, he again saw the ruins of Nimroud, and had a better opportunity of examining them. It was evening as he approached the spot. "The spring rains had clothed the mound with the richest verdure, and the fertile meadows which stretched around it were covered with flowers of every hue. Amidst this luxuriant vegetation were partly concealed a few fragments of bricks, pottery, and alabaster, upon which might be traced the well-defined wedges of the cuneiform character."* His curiosity was powerfully excited, and he was resolved thoroughly to examine these remains. Circumstances interfered with the prosecution of his object, and withdrew him from the scene of labour. It was not till the summer of 1842, that he again passed through Mosul on his way to Constantinople. He had not forgotten Nimroud; but then he had no time to explore ruins. He found, however, that M. Botta, the French consul at Mosul, had commenced excavations on the opposite side of the river, in the large mound of Kouyunjik. From Constantinople he wrote to M. Botta, encouraging him to proceed in his excavations. He did so, and to him is due the honour of having found the first Assyrian monument. This remarkable discovery, Dr Layard tells us, "owed its origin to the following circumstances:—The small party employed by M. Botta were at work on Kouyunjik, when a peasant from a distant village chanced to visit the spot. Seeing that every fragment of brick and alabaster uncovered by the workmen was carefully preserved, he asked the reason of this, to him, strange proceeding. On being informed that they were in search of sculptured stones, he advised them to try the mound on which his village was built, and in which he declared many such things as he wanted had been exposed on digging the foundations of new houses. M. Botta, having been frequently deceived by similar stories, was not at first inclined to follow the peasant's advice, but subsequently sent an agent and one or two workmen to the place. After a little opposition from the inhabitants, they were permitted to sink a well in the mound, and at a small distance from the surface they came to the top of a wall, which, on digging deeper, they found to be lined with sculptured slabs of gypsum. M. Botta, on receiving information of this discovery, went at once to the village, which was called Khorsabad. Directing a wider trench to be formed, and to be carried in the direction of the wall, he soon found that he had entered a chamber connected with others, and surrounded by slabs of gypsum, covered with sculptured representations of kings, warriors, battles, sieges, and similar events. His wonder may be easily imagined. A new history had been suddenly opened to him—the records of an unknown people were before him. He was equally at a loss to account for the age and the nature of the monument. The style of art of the sculptures, the dresses of the figures, the mythic forms in the walls, were all new to him, and afforded no clue to the epoch of the erection of the edifice, or to the people who were its founders. Numerous inscriptions, accompanying the bas-reliefs, evidently contained the explanation of the events there recorded in sculpture, and, being in the cuneiform, or arrow-headed character, proved that the building belonged to an age preceding the conquests of Alexander. . . . It was evident that the monument appertained to a very ancient and very civilised people, and it was natural from its position to refer it to the inhabitants of Nineveh—a city which, although it could not have occupied a site so distant from the Tigris, must have been in the vicinity of these ruins. M. Botta had discovered an Assyrian edifice, the first, probably, that had been exposed to the view of man since the fall of the Assyrian empire."

The discovery of Botta was made known to the French Academy of Fine Arts, whose members lost no time in applying to the Minister of Public Instruction for pecuniary means to carry on the excavations. Ample funds were guaranteed to the happy discoverer, and an artist of acknowledged skill was sent to take sketches of such objects as could not be removed. The success of the Frenchman heightened the desire of our own devoted countryman to turn his attention to the ruins and antiquities of Assyria. His thoughts were fixed on Nimroud. In the autumn of 1848, through the liberality of Sir Stratford Canning, he was in circumstances to enter on his grand enterprise. He left Constantinople without acquainting any one with the object of his journey, and in twelve days he found himself in the town of Mosul. He presented his letters to the governor of the province, but concealed from him the object which he had in view. Nimroud was seven hours' journey from Mosul; but he hastened thither, took up his abode in the hovel of an Arab, to whom he revealed the object of his visit, and to whom he held out the prospect of regular employment, and assigned him fixed wages as superintendent of the workmen. This pleased the Arab; and the shadows of night having fallen upon the world, our traveller retired to rest. He could not sleep. "Hopes, long cherished, were now to be realised, or were to end in disappointment. Visions of palaces underground, of gigantic monsters, of sculptured figures, and endless inscriptions, floated before him." Morning dawned, and his host, who had walked to a village three miles distant in the middle of the night, stood without with six Arabs whom he had brought with him to be employed in the works. The ruins were no longer covered with verdure, and the absence of all vegetation enabled him the more successfully to examine the remains. Broken pottery and bricks inscribed with the cuneiform character lay scattered all around. The Arabs watched his every movement, and brought him handfuls of rubbish for examination. To his inexpressible joy he found the fragments of a bas-relief, and concluding that sculptured remains must exist in some part of the mound, he sought and selected a place where he might commence his operations in earnest and with the hope of success. His first day's efforts were rewarded with the discovery of slab after slab—then of a chamber, and then of a wall, all enhanced by the inscriptions which they bore. This was enough. Next day, having increased the number of his men, he renewed his labours with increased interest. Before the evening he found himself in a room panelled with slabs, about eight feet in height, and varying from six to four feet in breadth. The bottom of the chamber was paved with smaller slabs than those which lined the walls. At his feet he found several objects in ivory, with traces of gilding.

Amid manifold difficulties, discouragements, interruptions, self-denials, and more than common sacrifices, he prosecuted his labours, but much of his time was spent in merely clearing away the rubbish which surrounded or concealed the ruins. His grand ambition was to bring the tools of his workmen into contact with some sculptured figures. He succeeded. By perseverance his Arabs completely exposed to view two slabs, on each of which were two bas-reliefs divided by an inscription. In describing these he says:—"In the upper compartment of the largest was a battle-scene, in which were represented two chariots, each drawn by richly-caparisoned horses at full speed, and containing a group of three warriors. The principal figure was clothed in a complete suit of mail of metal scales, embossed in the centre, and apparently attached to a shirt of felt or linen. This shirt was confined at the waist by a girdle. On his head was a pointed helmet, from which fell lappets, covered with scales, protecting the ears, lower part of the face, and neck, the whole head-dress resembling that of the early Normans. His left hand grasped a bow at full stretch, whilst his right drew the string, with the arrow ready to be discharged. The left arm was encircled by a guard, probably of leather, to protect it from the arrow. His sword was in a sheath, the end of which was elegantly adorned with the figures of two lions. In the same chariot, were a charioteer urging on the horses with reins and whip, and a shield-bearer who warded off the shafts of the enemy with a circular shield, which, like those of Solomon, and of the servants or shield-bearers of Hadad-ezer, king of Zobah, may have been of beaten gold. The chariots were low, rounded at the top, and edged by a rich moulding or border, probably inlaid with precious metals or painted. To the sides were suspended two highly-ornamented quivers, each containing, beside the arrows, a hatchet

* A few words as to this cuneiform character. It is a character whose component parts bear a close resemblance to a wedge, or the barb of an arrow, or a nail. Each letter is composed of several distinct wedges; and, according to Layard, this cuneiform or wedge-like character, under various modifications, prevailed over the greater part of Western Asia to the time of the overthrow of the Persian empire by Alexander the Great; and that it is to this fact that we mainly owe the progress that has been made in deciphering the Arabian inscriptions.

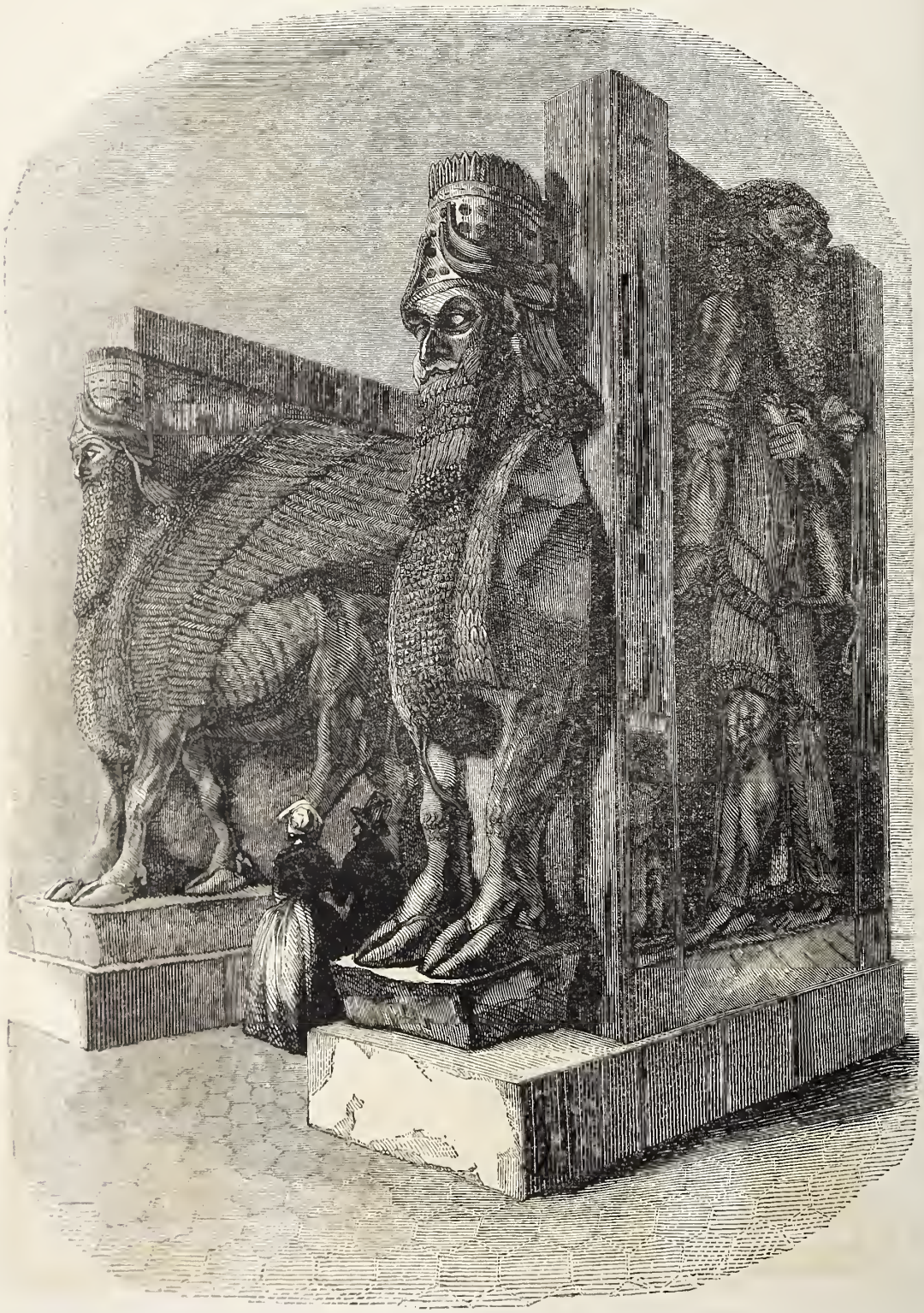
and an axe. . . . . The chariot was drawn by three horses, whose trappings, decorated with a profusion of tassels and rosettes, must have been of the most costly description. The archer, who evidently belonged to the conquering nation, was pursuing a flying enemy. Beneath the chariot-wheels were scattered the conquered and the dying, and an archer, about to be trodden down, was represented as endeavouring to check the speed of the advancing horses." The lower portion of this relief represented the siege of a castle or walled city. On the other slab were sculptured two warriors—the foremost in a pointed helmet, riding on one horse, and leading a second; the other, without helmet, standing in a chariot, and holding the reins loosely in his hands. On the lower part of the same slab were depicted the battlements and towers of a castle, while a woman stood on the walls, tearing her hair, in token of deeper grief. Future excavations led to the discovery of the principal palace, with its walls, and sculptured slabs, and colossal figures. The most perfect of the bas-reliefs represented a king raising his extended right hand, and resting his left upon a bow, with a captive enemy or rebel crouching at his feet. Having removed the workmen from the south-west corner of the ruins in which these remains were found, he resumed his excavations in the north-west division, opened a trench more in the centre of the edifice, and in two days he reached the top of an entire slab, standing in its original position, and on which were two human figures considerably above the natural size, and in admirable preservation. Judging from their attitude, and dress, and other circumstances, they appeared to represent divinities presiding over the seasons, or over particular religious ceremonies; for near to the slab with these figures was found THE HOLY TREE, or tree of life, so universally adored at the remotest periods in the east. The figures were back to back, and from the shoulders of each sprang two wings. Clothed in robes similar to these winged forms, a human body, surmounted by the head of an eagle or a vulture, next came into view, and was probably designed, by its mythic form, to typify the union of certain divine attributes. Such figures seem to have abounded in Assyria (See Fig. 6). A human body with the head of a lion, and the wings of an eagle:—the same body with an eagle's head, and wings attached:—a lion with a human head, and outspread wing:—a bull of the same description:—these have all been found, and must all be regarded as parts of one great complex system of symbolism. To these unnatural objects of worship more than one allusion is made in Scripture. There was no error against which the ancient prophets protested with more loud and solemn voice than that of idolatry, and yet there was no sin of which the Jew was more frequently and fearfully guilty. The Israelites, in addition to their former gross idolatries, received the impure idolatrous worship of the Assyrians, who became their neighbours by the conquest of Syria; and, like them, the inhabitants of Judah connected themselves with the Assyrians, and became enamoured with their idols; and then with the Chaldeans, whose idols they adopted, at the same time retaining their attachment to the Egyptians and their idolatrous rites. It is to these facts the prophet Ezekiel refers when, in the discharge of his sacred office, as an exile on the banks of the Chebar, and in the neighbourhood of Nineveh itself, he thus reproves the idolatry of the old Theocratic church:—"She doted upon the Assyrians, her neighbours; captains and rulers, clothed most gorgeously—horsemen riding upon horses—all of them desirable young men. . . When she saw men pourtrayed upon the wall, the images of the Chaldeans pourtrayed with vermilion, girded with girdles upon their loins, exceeding in dyed attire upon their heads, all of them princes to look to—deified men—after the manner of the Babylonians in Chaldea, the land of their nativity; and as soon as she saw them with her eyes, she doted upon them, and sent messengers unto them into Chaldea;" and hence she is told that the Babylonians, and all the Chaldeans, Peked, and Shoa, and Koa, and all the Assyrians with them—all of them desirable young men, captains and rulers, great lords and renowned, all of them riding upon horses—should come against her with chariots, waggons, and wheels, and with an assembly of people which should set against her buckler, and shield, and helmet round about, while an offended God would leave her in their hand to waste and devour her. Who can doubt that the prophet had seen the objects which he so graphically describes? His description of the figures sculptured upon the walls and painted, perfectly corresponds with the interior of the Assyrian palaces, as is now proved by the monuments rescued from the ruins of Nimroud and Khorsabad. His chambers of imagery were the counterpart of things which really did exist. The dark and polluting idolatry of the Jew was but the reflection of the moral impurity of the surrounding nations.

The winged human-headed lions, of which several have been found, and of which the representation of a winged bull (Fig. 8) will give the reader some idea, seem to have formed so many entrances into the principal chambers or apartments of the palace. They differ in form—the human shape being continued so far as the waist, and including human arms. These figures are about twelve feet in height, and about the same number in length. The symmetry and development of every part are perfect. Expanded wings spring from the shoulder, and spread over the back. A knotted girdle, ending in tassels, encircles the loins. In musing on these mysterious emblems, and in endeavouring to resolve their intent and history, Dr. Layard emphatically asks—"What more noble forms could have ushered the people into the temple of their gods? What more sublime images could have been borrowed from nature by man who sought, unaided by the light of revealed religion, to embody the conception of the wisdom, power, and ubiquity of a Supreme Being? They could find no better type of intellect and knowledge than the head of the man; of strength, than the body of the lion; of ubiquity, than the wings of the bird. These winged human-headed lions were not idle creations, the offspring of mere fancy—their meaning was written upon them. They had awed and instructed races which flourished three thousand years ago. Through the portals which they guarded, kings, priests, and warriors had borne sacrifices to their altars, long before the wisdom of the East had penetrated to Greece, and had furnished its mythology with symbols recognised of old by the Assyrian votaries. They may have been buried, and their existence may have been unknown before the foundation of the eternal city. For twenty-five centuries they have been hid from the eye of man, and they now shine forth once more in their ancient majesty. But how changed was the scene around them! The luxury and civilization of a mighty nation had given place to the wretchedness and ignorance of a few half-barbarous tribes. The wealth of temples, and the riches of great cities had been succeeded by ruins and shapeless heaps of earth. Above the spacious hall in which they stood, the plough had passed, and the corn now waved. Egypt has monuments no less ancient and no less wonderful; but they have stood forth for ages to testify her early power and renown; whilst those of Nineveh have but now appeared to bear witness, in the words of the prophet, that once 'the Assyrian was a cedar in Lebanon, with fair branches, and with a shadowing shroud of a high stature; and his top was among the thick boughs—his height was exalted above all the trees of the field, and his boughs were multiplied, and his branches became long, because of the multitude of waters where he shot forth. All the fowls of heaven made their nests in his boughs, and under his branches did all the beasts of the field bring forth their young, and under his shadow dwelt all great nations; for now is Nineveh a desolation, and dry like a wilderness, and flocks lie down in the midst of her: all the beasts of the nation, both the cormorant and the bittern, lodge in the upper lintels of it; their voice sings in the windows; and desolation is in the thresholds.'"

Having once found an entrance into the grand palace, chamber led into chamber, each with its sculptured walls and more than fabled figures. What the ring on the back of the lion (Fig. 11) is meant to symbolize we know not. The noble animal is in bronze, and of one piece, and the cast displays great faithfulness to nature. One slab represented the king holding a bow in one hand, and the arrows in the other, followed by his attendant eunuch bearing a second bow and a quiver for his use, and a mace with a head in the form of a rosette, while his ministers and his servants are pourtrayed in the humblest posture of submission. These figures, which were exquisitely finished, were about eight feet high, and the ornaments rich and elaborate, one of them carrying an antelope, such as still abound on the hills in the neighbourhood (Fig. 5), and having a branch of the holy tree in his hand. Of winged giants, vizirs, and their attendants, cap-

tives and tribute-bearers, eagle-headed figures, castles built on an island in a river, battles, sieges, and other historical subjects (Fig. 9); warriors escaping from the enemy; a combat with a lion, in which the latter is being strangled (Fig. 2);

Arabs believed to be the very head of Nimrod himself, the founder of the Assyrian empire. When this interesting object came into view, Dr. Layard was not present. On his way to the ruins where his men were at work, he met two Arabs riding at full



COLOSSAL SCULPTURES, DISCOVERED BY M. BOTTA.—(*See page* 154.) Fig. 10.

hunting scenes in which the monarch is the principal actor, and in which his courage, wisdom, and dexterity were as much shown as in martial exploits, we can take no notice. We choose rather to reserve a space for the discovery of what the

speed, who, on seeing him, suddenly stopped, and looking, half-serious and half-frightened in his face, exclaimed—"Hasten, O Bey! hasten to the diggers, for they have found Nimrod himself. Wallah! it is wonderful, but it is true. We have seen him

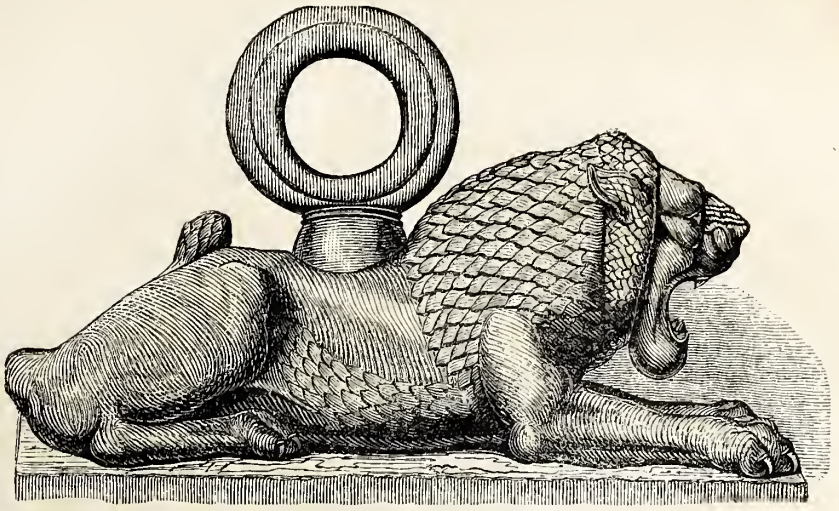


Fig. 11. LION IN BRONZE.—(*See page* 151.)

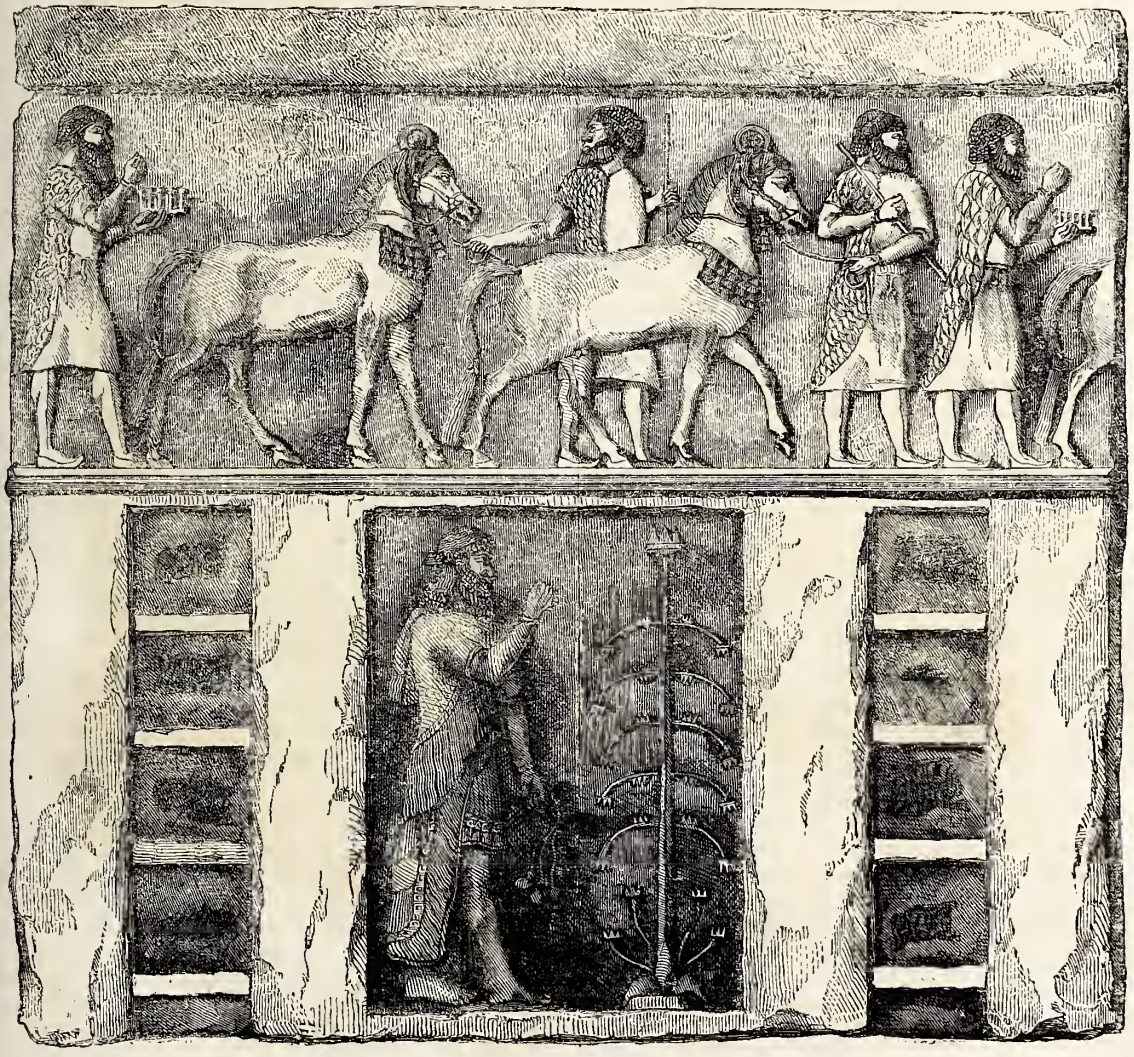


Fig. 12. TABLET, FROM THE ASSYRIAN MUSEUM AT THE LOUVRE.—(*See page* 154.)

with our eyes. There is no God but God!" And so saying they galloped off to their tents. On reaching the ruins, and examining the head, he was convinced that it belonged to a winged lion or bull. It was in admirable preservation, and the outline of the features showed a freedom and knowledge of art scarcely to be looked for in works of so remote a period. His account of the scene connected with this discovery is worthy of insertion. He says:—"I was not surprised that the Arabs had been amazed and terrified at this apparition. It required no stretch of imagination to conjure up the most strange fancies. This gigantic head,

blanched with age, thus rising from the bowels of the earth, might well have belonged to one of those fearful beings which are pictured in the traditions of the country as appearing to mortals, slowly ascending from the regions below. One of the workmen, on catching the first glimpse of the monster, had thrown down his basket, and run off towards Mosul as fast as his legs could carry him." Very soon the sheikh, followed by half his tribe, appeared on the edge of the trench; but "it was some time before he could be prevailed upon to descend into the pit, and convince himself that the image which he saw was of stone. 'This is not the work of men's hands,' he exclaimed, 'but of those infidel giants of whom the Prophet—peace be with him!—has said, that they were taller than the highest date trees; this is one of the idols which Noah—peace be with him!—cursed before the flood!' In this opinion, the result of a careful examination, all the bystanders concurred."

Of these magnificent and colossal figures some idea may be formed from the illustration (Fig. 10). The slab from which the design is taken belongs to the splendid collection of M. Botta, and is included in the Assyrian Museum lately founded in the Louvre at Paris. It was taken from the palace of Khorsabad in the year 1844, and therefore before Layard had commenced his excavations at Nimroud. These splendid bulls, with a human head like the human-headed lions, were used in the construction of imposing entrances into the palace, and may be regarded as one of the characteristic traits of Assyrian and Persian architecture. It was with inconceivable difficulty that the illustrious Frenchman got such specimens preserved and removed. The most difficult to remove were the most interesting and the most valuable. Happily, they reached Paris in the month of February, 1847, without accident, and are now accessible to the whole civilised world. Nor these only. Dr. Layard, having made some ineffectual attempts to find the exact site of the ancient Nineveh by an examination of the great mound of Kouyunjik, resumed his excavations in the north-west palace of Nimroud, and entered a hall one hundred and fifty-four feet in length by thirty-three in breadth, in which he found a slab fourteen feet long, cut into a recess, representing two kings standing face to face, with their right hands raised in prayer or adoration. Between them was the sacred tree, above which hovered the emblem of the supreme deity—a human figure with the wings and tail of a bird, enclosed in a circle. The kings appeared to be attired for the performance of some religious service. In another chamber he found eagle-headed deities facing one another, and separated by the sacred tree. In one instance a king stood between those mythic figures, and around whose neck were suspended the five sacred emblems—the sun, a star, a half-moon, a trident, and a horned cap similar to those worn by the human-headed bulls. Another chamber was remarkable for the elaborate and careful finish of its sculptures. The principal figure was that of a king seated on a throne, holding in his right hand a cup, and resting his left upon his knee, and surrounded by his attendants. The whole group designed probably to represent the celebration of some signal victory by the observance of a religious ceremony, in which the presiding divinities of Assyria, or consecrated priests assuming their form, ministered to the monarch. The robes of the king and those of his attendants were covered with the most elaborate designs. In the centre of his breast were represented two princes in acts of adoration before the image of the supreme god. Around were engraved figures of winged deities, and the king performing different religious ceremonies. The throne* was tastefully carved, and adorned with the heads of rams; the legs of the footstool, which may have been of wood or copper inlaid with ivory and other precious materials, or of solid gold, terminated in lions' paws (*see page* 147).

The work of exhumation and discovery having so far been crowned with success, our countryman began to think of sending home some of his accumulated and precious treasure. If M. Botta found the work of exportation the most difficult of his difficulties, Layard painfully learned the same thing. With impaired health, and limited means, and inexperienced workmen, and few facilities, he had no common task to perform. Still he shrunk not from the undertaking. He sawed the slabs containing double bas-reliefs into two pieces, reduced them as much as possible in weight and size, packed and conveyed them from the mound on buffalo carts to the river, where they were placed upon a raft constructed of inflated skins and beams of poplar wood, when they were floated down the Tigris as far as Baghdad, were then transferred to the boats of the country, and reached Busrah for transport to Bombay, and thence to England. The sculptures thus sent home formed the first collection exhibited to the public in the British Museum; and their removal awakened among the Arabs of all classes no little surprise and astonishment. Before being sent off, the Pacha, with all the dignitaries of his household, came to inspect them. Neither he nor his followers knew how to give expression to their feelings. The colossal figures were deemed the idols of the infidels; but some of them protested that they could not be the handiwork of unbelievers, that the infidels could not make anything like them, that they were the production of the magi, and that they were being sent to England to form a gateway to the palace of her queen!

The state of his health compelling him to give up for a time his labours at Nimroud, we find that Dr. Layard took a journey to the Tiyara mountains. On his way he visited Khorsabad, as the scene of the successful labours of his friend and fellow-worker, M. Botta, whose fame had spread over Europe. He found that the excavations had been carried on as at Nimroud; that the general plan of the building corresponded, only the passages were more narrow, and the chambers inferior in size; that the sculptured slabs exceeded in height, and that the relief of the larger figures had a bolder and more impressive character. It appears that, since the time M. Botta had left the interesting spot, the sides of the trenches had fallen in, and filled up the greater part of the chambers; that the influence of external agencies had become visible in the perishing sculptures; and that shortly nothing could be left of this remarkable monument. At the foot of the mound lay the ruins of a sacred shrine—a tripod or altar—corresponding to that now in the Louvre. In fact, the religious idea seems to have been embodied by the Assyrians in all their works of art. It comes out in the representations of their sieges, battles, conquests, festivals, sports, and social customs. We may therefore suppose that they were an eminently religious people, though their religion took on the character of superstition and idolatry. Sacred rites were connected with all which they did or achieved, as the lower tablet (Fig. 12), taken from M. Botta's collection, will strikingly show.

The upper part of the representation shows you four soldiers, perhaps tributaries or prisoners, leading some beautiful and spirited horses. The one at the head of the procession has a long beard, and his dress consists of a short tunic, fastened by a girdle, from which hangs a sort of little pocket or satchel; his shoulders are covered with a lion's skin; his legs are enveloped in spatterdashes, laced in the front, and his feet in a kind of curved clog. He holds in his left hand a model of a town, with its walls indented. Rather, is it not a mural crown, or some symbol corresponding with the modern usage of carrying the keys of a place to the besieger? With his right hand he makes a motion or gesture in token of his submission. The other three are attired in the same manner, only the last has a leopard's skin falling from his shoulders. He assumes the same attitude as the first, and also carries in his hand the model of a town, or symbol of surrender. The plume which surmounts the heads of the horses, the four rows of tassels with which their chest is ornamented, the bridles, and the handle of the lances, are all of a rouge or red colour. Beneath the relief is an inscription in the cuneiform character, which is believed to be nothing more than the name of Medea, with the loyal legend:—"Sargou, the great king—the king all-powerful—the king of kings of the country of Asshur."

The lower division of the design represents a priest in basalt. In addition to his long beard, his hair is curled, and flows in ringlets. The short tunic with which he is invested is ornamented with lace and tassels, and concealed in part under a stola, or sort of trailing or sweeping robe, which passes under the left shoulder, crosses the chest in a diagonal form, leaving the right shoulder uncovered, and opens in the front. The feet are fitted with sandals. His right hand is uplifted in token of invocation, and from his left hand hangs a branch of poppy with three capsules.

* The cut in page 147 is from the collection of M. Botta. The one found by Layard was a mere stool, without any back, but very elegant.

Before him is a plant which resembles a kind of agave. From the stalk there come out several branches in flower, and the root is adorned with large leaves, which turn over and present the appearance of a fleur-de-lis. It is a beautiful specimen of art, and shows how impressively the idea of the mind can be conveyed to inanimate matter, and that matter become a testimony to the latest ages of the truth of history.

Subsequent to the arrival of Dr. Layard's collection in England, the British Museum obtained a grant of money to carry on the researches which had been commenced at Nimroud and elsewhere. The grant was wholly inadequate to the magnitude of the undertaking. But that the nation might possess as extensive and complete a collection of Assyrian antiquities as it was possible to collect, our disinterested countryman accepted the charge of superintending the excavations. Having made all necessary preparations, he resumed his labours at Nimroud. Sculptures of the highest interest came into view. One represented the king, with his warriors, engaged in battle under the walls of a hostile castle, with the emblem of the supreme divinity hovering over the head of the monarch. Another exhibited the triumphal procession, with the castle and pavilion of the victorious king. In a third, the eagles hovered above the victims, and were feeding on the slain. The horses, for which Assyria was celebrated, were of the noblest breed, while their harness and trappings were remarkable for their richness and their elegance, their graceful plumes and fanciful crests, ornamented with long ribands or streamers, as may be inferred from the bas-relief (Fig. 7), in which a man is seen leading four of these noble animals. In a fourth slab, the king was in the act of receiving prisoners, and then crossing the river with his army. Battle-scenes and human figures abounded in every department.

A monument in black marble was uncovered, which proved to be an obelisk, about six feet six inches in height, lying on its side, ten feet below the surface; on each side of it were five bas-reliefs, and above, below, and between them, was carved a long inscription of two hundred and ten lines. The king was twice represented followed by his attendants; a prisoner was at his feet, and his ministers and eunuchs were introducing captives and tributaries carrying vases, shawls, bundles of rare wood, elephants' tusks, and other offerings. From the animals pourtrayed—the elephant, the rhinoceros, the Bactrian camel, the wild bull, and several kinds of monkeys, all led by the prisoners—it is conjectured, that the obelisk was sculptured to commemorate the conquest of nations far to the east of Assyria, on the confines of the Indian peninsula. The whole column was in the best preservation. A dragon with an eagle's head and the claws of a bird—a monster with the head of a lion, the body of a man, and the feet of a bird, in the act of raising a sword—couching sphinxes, which were probably used as altars, and other objects of interest, were found in the south-west corner of the mound. Tombs with skeletons, either in part or entire, were discovered in the south-east corner. In the north-west palace, which is considered the most ancient building, the bas-reliefs excelled all those that had yet been discovered, in the elegance and finish of the ornaments, and in the spirited delineations of the figures. The colossal image of a female with four wings, carrying a garland, was discovered, as also a fine bas-relief of the king leaning on a wand or staff. There were also numerous winged forms, and tablets of ivory, and vessels of various shapes.

In the central palace the subjects were principally battle-pieces and sieges—cities represented as standing in a river, in the midst of groves of date-trees—and amongst the conquered people were warriors mounted on camels; battering-rams, rolled up against the walls of the town besieged; shields, helmets, and other portions of mail; conquerors carrying away the spoil; the king receiving prisoners, with their arms bound behind them; eunuchs registering the heads of the enemy, laid at their feet by the conquerors; and captive women, in a cart drawn by oxen. In the south-west palace the following interesting bas-relief was discovered:—"A king seated on his throne, receiving his vizier or minister, and surrounded by his attendants, within the walls of a castle; a warrior wearing a crested helmet on a rearing horse, asking quarter of Assyrian horsemen; a spearman on horseback, hunting the wild bull; the king of the north-west palace in his chariot, fighting with the enemy; the siege of a castle;" a prince placing his foot on the neck of a captive, and raising his spear in his right hand, with a procession of warriors carrying away the idols of a conquered nation, and a tablet recording the conquest of some monarch, whose name occurs in no other ruins yet discovered, and to whom no place can yet be assigned in the Assyrian royal lists.

Dr. Layard is of opinion that the existing ruins show that Nineveh acquired its greatest extent and prosperity in the times of the kings mentioned in Scripture, and at which period it was visited by the divinely-commissioned prophet; that the edifices, of which the remains are found at Nimroud, Kouyunjik, and Khorsabad, formed at one time part of the same great city; that each of these palace-temples was probably the centre of a separate quarter, built at a different time, and having a different name; that an interval of several centuries must have intervened between the erection of the different palaces; that this is proved by the fact that the south-west palace was built of materials taken from the north-west palace; that the remarkable differences in the costume of the kings, the forms of the chariots, the trappings of the horses, and the arms and armour of the warriors, seem to indicate that a new dynasty had ejected the older family; that the greater antiquity of the Nimroud ruins is evident from the fact, that the name of the king who built the palace of Khorsabad was found cut above the original inscription; that in a genealogical series of three kings, the name of the first nearly resembled that of the builder of the north-west palace, that of his father was identical with the name engraved on the bricks found in the ruins opposite to Mosul, and that of his grandfather with the name of the founder of Khorsabad;—that this discovery connects the latest palace at Nimroud with the two other Assyrian edifices;—that the discovery of tombs over some of the ruins proves that the Assyrian edifices were overthrown and buried at a very remote period; and yet it is impossible to determine what antiquity belongs to the buildings beneath these tombs, or to say at what period these tombs were erected, or what race then occupied the country;—that the great mound of Nimroud had never been opened, nor its contents carried away since the destruction of the latest palace;—that there are no remains either at Kouyunjik or Khorsabad of the same early period as those at Nimroud, and that Nimroud represents the original site of Nineveh. "The son of the builder of the oldest palace founded a new edifice at Baushiekhah. At a much later period, subsequent monarchs erected their temple-palaces at Khorsabad and Kouyunjik. Their descendants returned to Nimroud, the principal buildings of which had been allowed to fall to decay, and were probably already concealed by a mass of ruins and rubbish. The city had now attained the dimensions assigned to it by the Greek geographers and by the Sacred Writings. The numerous royal residences, surrounded by gardens and parks, and enclosed by fortified walls, each being a distinct quarter known by a different name, formed together the great city of Nineveh."

We wonder not that, on emerging from these underground ruins, and looking around in vain from the naked platform for any traces of the wonderful remains which he had seen beneath, our countryman was half inclined to believe that he had dreamed a dream, or had been listening to some tale of Eastern romance; nor can it surprise us if some one who may hereafter visit these ruins, when the grass has again grown upon them, may fancy that the whole was nothing more than a vision.

Since writing the above article, another collection of these remains has arrived in England. The public papers report also that Mr. Layard has accepted office in connexion with the Government as Under-Secretary of State for Foreign Affairs. This must be regarded as a just tribute to distinguish merit. Some have regretted this appointment, as it would prevent him from continuing his interesting and instructive researches amid the ruins of the Assyrian empire. The changes which have just taken place in the administration of the affairs of the country may, however, leave him again at liberty to renew those researches. Be that as it may, we acknowledge with gratitude that he has done enough to confirm the testimony of Scripture, to silence the objections of the infidel, to confer an invaluable boon upon his nation, and to read the most impressive lessons to man in all future time.

THE YOUNG POSTBOY.

The old postman is dead, and his son is now about to take his place; to journey from the village to the town carrying the letters and parcels, bringing the news from house to house—who is dead, who has got married, who has lost his wife, who has got a new lease—that Peter Jones has sold his cow, or that Dick Jonson's house is for sale. He is the newspaper of the place, and bears good and evil tidings with equal indifference. And the poor boy is now about to begin his dead father's occupation. The old pony stands with saddle-cloth and halter at the door. His grandmother is placing in a basket the provisions which must serve him until his return. A thousand misgivings and anxieties gather round her heart, and at last rise to her lips; she thinks of the pleurisy which carried off his father, of the damp mists of the morning and the evening chill, of the pony's skittishness. She fears it may throw him in the flooded river, or that the farmers' dogs may frighten it. Ah! and the public-house—a danger more terrible than all—rises up before her; the public-house set at the entrance to the town, like a trap for the unwary, with its gaudy windows, begrimed walls, flaming lights, and brutal revelry. Other perils may threaten his life or limbs; but this assails first his purse, and then his health, and last of all leaves a "damned spot" on his soul. And, alas! for the poor old woman, her fears are not altogether unfounded. For the first time, the young face towards which her anxious and inquiring looks are directed seems not to wear its former expression of ingenuous honesty. Money soils the hands that touch it. There is temptation in its glitter, and evil promptings in its chink. What a host of devils dance around it!—vanity, gluttony, jollity, bad company, drink, dishonesty, ruin. The lad gropes in his pocket with an uncertain hand, and hesitates sadly as he gives an account of his last day's receipts; and the poor old woman reluctantly notices the embarrassment depicted on his countenance.

"You're come of a good stock, my boy," she seems to say. "Your father, and grandfather, and great-grandfather—poor old man! I think I see him still sitting in the arm-chair by the fire—they were all poor and hard-working, but they were honest. Not one of the breed, son or daughter, ever left a stain on our good name. There's not one in the country who wouldn't have given your father a purse full of money to carry for them, without ever counting it, or have put his daughter under his care on the darkest night that ever fell—that wouldn't entrust to him the key of his house, or his cellar, or his drawer; and you're his son—the son of honest John Matthews."

The daughter-in-law listens in silence to what the old woman says, and hope for the future is still mingled with regret for her departed husband. But what if her son, the hope of her life should become a disgrace and torment!

Wilkie, above all men, had the art of telling a tale, be it of joy or sorrow, by looks and gestures. All that we have here written we can read from his canvas as plainly as if it were printed. That overwhelming depths of sorrow, purest joy, proudest love, and highest hope, may be expressed by the glance of an eye, is a fact which has furnished a theme to many a poet; but the highest triumph of art is to transfer speechless woe, or shame or grief, or merriment, to the mute canvas, and bid colour, light, and shade tell their own tale in forms of unfading beauty. Painting has not always been employed in the service of morality and religion; but these triumphs of the greatest of our artists prove that it is possible to make art at the same time subservient to the claims of ideal beauty, and to purposes of practical utility. This is the more important and the more gratifying, because we know that what is presented to the eye always makes a stronger impression than the most eloquent homily spoken in the ear. A painting which points a moral well may remain before the mind's eye many a year after "a wise saw or modern instance" has escaped the memory. And this is the secret of the people's love for "illustrations."



THE YOUNG POSTBOY. FROM A DRAWING BY WILKIE.

THE SWANS.

PRE-EMINENT for grace and elegance among the varied order of the swimming-birds are the Swans. The one known in our island, and the adjacent parts of the Continent, is alike conspicuous for the beauty of its form and the elegance of its attitudes. As we observe it gliding over its congenial element, we are disposed to exclaim with Wordsworth :—

"Behold! the mantling spirit of reserve
Fashions his neck into a goodly curve
An arch thrown back between luxuriant wings
Of whitest garniture, like fir-tree boughs,
To which, on some unruffled morning, clings
A dusky weight of Winter's purest snows!"

This noble bird is known only to us in a state more or less completely domesticated. The nest, consisting of a large mass of reeds, rushes, and other coarse herbage, is found on the ground near the edge of the water, and an island is generally chosen rather than a bank. The female produces six or seven eggs; these are of a dull greenish white; they are four inches in length, and rather more than two inches in breadth.



BLACK-NECKED SWANS IN THE GARDENS OF THE ZOOLOGICAL SOCIETY.

"Living on the banks of the Thames," says Mr. Jesse, "I have often been pleased with seeing the care taken of the young swans by the parent birds. Where the stream is strong the old swan will sink herself sufficiently low to bring her back on a level with the water, when the cygnets will get upon it, and in this manner are conveyed to the other side of the river, or into stiller water. Each family of swans on the river has its own district; and if the limits of that district are encroached upon by other swans, a pursuit immediately takes place, and the intruders are driven away. Except in this instance, they appear to live in a state of the most perfect harmony. The male is very attentive to the female, assists in making the nest, and when a sudden rise of the river takes place, joins her with great assiduity in raising the nest sufficiently high to prevent the eggs being chilled by the action of the water, though sometimes its rise is so rapid that the whole nest is washed away and destroyed."

The swan is a royal bird, and often figured in the princely pleasures of the former sovereigns of England. In the time of Edward IV. no one was permitted to keep swans who did not possess a freehold of at least five marks yearly value, with the exception of the king's son; and by an act of Henry VII., persons convicted of taking their eggs were liable to a year's imprisonment, and a fine at the will of the sovereign. For ages, the Corporation of the City of London were accustomed, annually, to visit the swans on the Thames—a practice commonly called Swan-*hopping*." This name is a corruption of the phraseology in use, of "Swan-*upping*;" denoting the duties of the official visitors, which was to "take up" the swans that they might be marked. In proof of their estimation in former times, a rare and valuable quarto tract, printed in 1570, mentions the "*upping* daies"—declares what persons shall "*up* no swannes"—and speaks of a court no longer generally known—"the King's Majesties Justices of Sessions of Swans."

The sign of one of our old city inns, "The Swan with Two Necks," arose out of a practice of those times. According to the swan laws, every one belonging to the king was marked with two *nicks* or notches; and the original sign was the royal bird so marked, that is to say, with two *nicks*. In process of time, by some mistake, the two nicks were called two necks; and the error has been perpetuated to our own day.

Mr. Grouvelle states, that when a severe frost threatens to usurp their domain, the swans congregate and dash the water with their wings fully extended, making a noise which is heard very far, and which, whether in the night or the day, is louder in proportion as the frost becomes more intense. In former times the swan was served up at every great feast; and the late Bishop of Norwich, then President of the Linnæan Society, favoured Mr. Yarrell with the following particulars of a practice in that city, in reference to the feeding the young swans of the year for the table:—The town-clerk sends a note from the Town-hall to the public swan-herd, the corporation, and others, who have swans and swan-rights. On the second Monday in August, when collected in a small stream or pond, the number annually varying from fifty to seventy, and many of them belonging to private individuals, they begin to feed immediately, being provided with as much barley as they can eat, and are usually ready for killing early in November. A printed copy of the following lines is usually sent with each bird :—

TO ROAST A SWAN.

Take three pounds of beef, beat fine in a mortar,
Put it into the swan—that is, when you've caught her;
Some pepper, salt, mace, some nutmeg, an onion,
Will heighten the flavour in gourmand's opinion.
Then tie it up tight with a small piece of tape,
That the gravy and other things may not escape.
A meal paste, rather stiff, should be laid on the breast,
And some whited brown paper should cover the rest.
Fifteen minutes, at least, ere the swan you take down,
Pull the paste off the bird, that the breast may get brown."

THE GRAVY.

To a gravy of beef, good and strong I opine,
You'll be right if you add half a pint of port wine,
Pour this through the swan, yes, quite through the belly,
Then serve the whole up with some hot currant jelly.

N.B. The swan must not be skinned.

The voice of the swan is low, soft, and murmuring, and when heard from multitudes congregated together has a very pleasing

effect. To it Shakspeare repeatedly alludes. Thus, while Bassanio deliberates on the caskets, Portia says:

"Let music sound while he doth make his choice:
Then if he lose, he makes a swan-like end—
Fading in music."

And after Othello has slain his innocent bride, Emilia exclaims, while her heart is breaking,

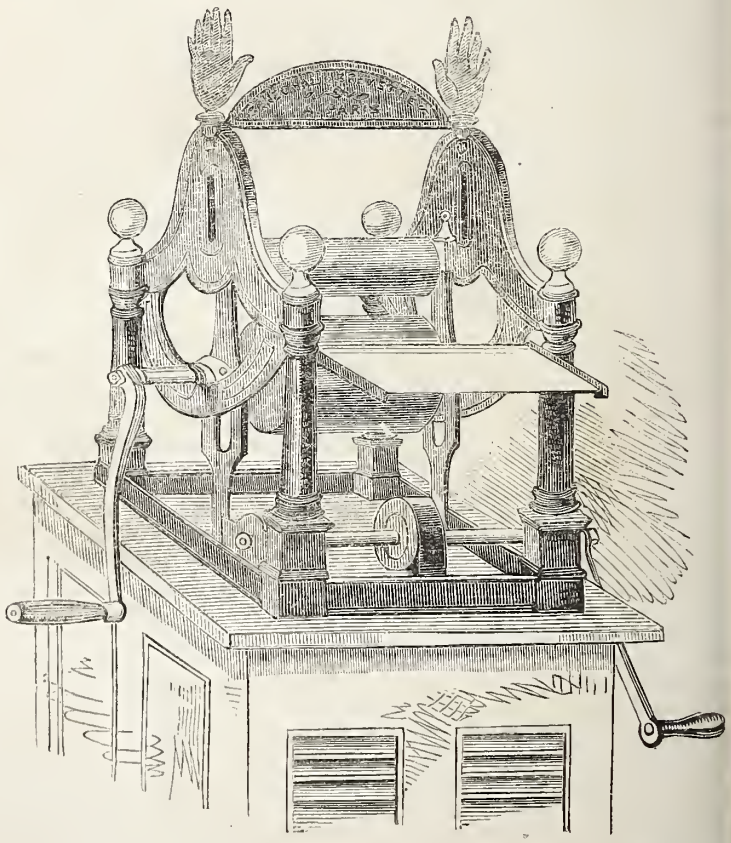
"Hark! canst thou hear me? I will play the swan,
And die in music—Willow, willow, willow."

The Hooper, or whistling swan, is a winter visitor to the British islands, even to the southern parts, arriving in flocks, sometimes as late as Christmas, and they are generally more numerous as the weather becomes more severe. The Rev. Mr. Low says:—"The wild swan is found in all seasons in Orkney; a few pairs build in the holms of the loch of Stenuess. These, however, are nothing to the flocks that visit us in October from the more northern climates—their summer retreats. Part of these continue with us all the winter, and the rest go to Caithness and the other northern shores of Scotland; in April they go again to the northward, except the few which remain here for the summer. Like the wild geese, these birds fly in the fashion of a wedge, making a few melodious clangs, which has, perhaps, furnished one occasion to give a musical voice to this bird." These birds visit Holland, France, Provence, and Italy; and it is said they sometimes go as far south as Egypt and Barbary.

Several years ago some hoopers were in the possession of the late Earl of Egremont at Petworth, where they are said to have produced their young. The note of one of them, a very old and large male, is described as resembling the sound of the word "hoop;" he repeated it loudly ten or twelve times in succession. Mr. Yarrell states that a pair of hoopers bred on one of the islands in the gardens of the Zoological Society, in the summer of 1839, and that a curious circumstance occurred at that time, in reference to the brood. The cygnets, when only a few days old, were sunning themselves on the margin of one of the islands, close to the deep water. The parent birds were swimming near. A carrion crow made a descent, and struck at one of the cygnets; the old male hooper came to the rescue in an instant, seized the crow with his beak, pulled him into the water, and in spite of all his buffetings and resistance, held him there till he was dead.

A very beautiful species of the swan is found in Chili, the Falkland Islands, the River Plate, and other parts of South America. It is distinguished by a black neck, which finely contrasts with the snowy whiteness of the rest of its plumage. The bill is red, and the legs flesh colour. The engraving exhibits two of them lately bequeathed by the Earl of Derby, from his celebrated collection at Knowsley, to the Zoological Society of London, of which his lordship was the president. The society now possesses four examples of the black-necked swan. One other pair only exist in Europe, and are in her Majesty's collection at Buckingham Palace.

SENECHAL'S GLOVE-CUTTING MACHINE.



Gloves in our day and in our climate may be considered almost as necessary a part of our clothing as hats and boots; and that they should subserve the purposes for which they are designed—to provide warmth in winter, and coolness in summer—it is necessary not only that they should be made of the most suitable materials, but they should *fit well*—a desideratum not much considered in the days of our ancestors. Of the antiquity of these coverings for the hands there can be little doubt, for the very word "glof" is Anglo-Saxon. Though not mentioned in Scripture, there is no question but that they were worn by the Romans in the time of Pliny the younger; and Xenophon tells us that their use among the Persians was considered a proof of wealth and luxury. Like many other parts of our dress, gloves have had their symbolical meanings. The hand, in the old Germanic law, was the symbol of power, and from the hand to the glove was an easy transition. Thus, probably, arose the practice of throwing down the knightly gauntlet as a challenge—a practice still forming part of our coronation ceremony. The custom of presenting a pair of white gloves to the judge at a maiden assize—an event of no very common occurrence in this country—may be regarded as a token of the absence of guilt in that district. It has also been suggested that the white gloves referred, originally, to the white or pure hand of justice; and it appears, according to a distich in Clavell's "Recantation of an Ill-led Life"—London, 1634—

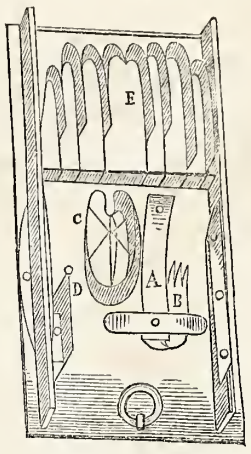
"Those pardoned men, who taste their princes' loves,
(As married to new life) do give new gloves"—

that it was customary for the pardoned prisoner to present the judge with a pair of gloves. Again, the old Spanish proverb tells us that "white hands never offend"—an adage which may have originally suggested the practice.

Gloves have been, time out of mind, the recognisable symbols of good faith and courtesy. "Master Prynne," in his visit to Archbishop Laud, in the Tower, in May, 1643, is said to have accepted "a few pair of gloves upon the Archbishop's extraordinary pressing importunity;" and even to this day it is no less customary to present to each of the followers at a funeral a pair of black gloves than to give white ones and "favours" to the wedding guests. Gloves are not worn before royalty, and judges were prohibited, in ancient times, from wearing gloves on the bench.

But to get off our antiquarian hobby, and to return to our subject, the Glove-Cutting Machine. Economy of production has induced glove-manufacturers to cut them by machinery, though, to produce "a good fit," the London glove makers consider that those cut out by hand are the best. Of course we are referring only to leather gloves. The instrument, of which we

give a perspective view, is the invention of Mr. Senechal, of Paris, and was shown at the late Exhibition. Its purpose is to cut out leather gloves to the exact shape necessary, nothing remaining for the workwoman to do but to stitch or sew the separate parts together. The instrument called the cutter is passed through the cylinders, which press the leather on to the steel knives, of which the former is composed, and a dozen or more pairs of gloves are produced at one operation. The little diagram will show the nature of the cutter, which is of the exact form of the glove before it is sewn together. A is the spring which grasps or presses the cutter as it passes through the rollers; B is a fork which holds the various pieces of leather together; C represents the piece necessary to be cut out for the insertion of the thumb; E are the knives which cut out the fingers; and D is the slit in the middle of the glove. The button-holes are afterwards made and the buttons sewn on by hand. By this cutting-machine one man may cut out about two hundred dozen pairs per day. A cutter is required for each hand, and, of course, each different size glove requires a separate cutter.



English leather gloves are made principally at Worcester, Yeovil, Woodstock, and London, though large numbers are imported from Paris and Vienna, in which latter city are produced annually about 180,000 dozen pairs.

The Glovers were well represented in the late Exhibition; seven manufacturers of leather, and seventeen makers of silk, thread, and woollen gloves appearing on the English side of the building. On the other hand, we had both leather and silk gloves from France, Germany, Austria, Denmark, Turkey, Russia, Spain, Portugal, the Netherlands, Malta, and Van Diemen's Land; and prizes were awarded to English, French, and Austrian manufacturers.

THE LADIES' DEPARTMENT.

THE PINE COUVRETTE, FOR A MUSIC STOOL, IN CROCHET.

MATERIALS.—Eight reels of crochet cotton, No. 12; crochet hook, No. 18.

This couvrette is begun in the centre, and worked round and round, the thread never being broken off but when it is so mentioned in the receipt. [For full instructions in crochet, we refer the reader to page 14 of this work.]

Make a chain of 6; close it into a round, on which do 8 s.c. stitches.

2nd round: × 1 d.c. under a stitch (taking up both sides of the chain), 2 ch., miss none, × 8 times. Close the round with a slip-stitch on the first d.c.

3rd: 1 s.c. on every chain-stitch, and 2 s.c. on every d.c. in the round.

4th: 3 ch., twist them, and continue as a d.c. stitch; × 3 ch. miss 3, 3 d.c., all on the second of the 2 s.c. worked on one in last row, × 7 times; 3 ch., miss 3, 2 d.c. on last stitch of last row; slip on the top of the three twisted chain, which completes the round.

5th: Begin this and all succeeding rounds with a d.c. stitch, made of 3 ch., × 3 ch., miss 3 ch., 2 d.c. on first d.c., 1 on next, 2 on next, × 7 times; 3 ch., miss 3, 2 d.c. on 1 d.c., 1 d.c. on next; slip on top of the 3 chain that began the round.

6th: Worked exactly like 5th, with 2 d.c. on the first and last of every 5, and 1 on each of the intermediate, so that the round consists of 8 sides, of 7 d.c. each, divided by a chain of three.

7th: The same, with 10 d.c. over the 7.

8th: The same, with 12 d.c. over the 10.

9th: 3 ch., twist it into a d.c. stitch, × 3 more chain, 2 d.c. in first of 12, 4 d.c. in next 4, 3 ch., miss 2, 4 d.c. in 4, 2 d.c. in last of 12, × 7 times; 3 ch., 2 d.c. in first, 4 d.c. in 4, 3 ch., miss 2, 4 d.c. in 4, 1 d.c. in the same as the twisted chain; finish with a slip-stitch.

10th: Begin, as usual, with 6 ch.; then on each section of the octagon, × 4 d.c. on first 4, 3 ch., miss 2, 3 d.c. on 3 ch., 3 ch., miss 2, 4 d.c. on 4, × 3 ch. between. At the last of the 8 finish with 3 d.c., as the last is made at the beginning of the round; slip on the top of it.

11th: Begin and end as usual [*see note*]. On each section do × 2 d.c. on 2, 3 ch., miss 2, 3 d.c. on 3 ch., 3 ch., miss 3 d.c., 3 d.c. on 3 ch., 3 ch., miss 2, 2 d.c. on last 2, 3 ch., ×

12th: Begin and end as usual. On each section work, × 2 d.c on one, 4 d.c. on 4, 3 ch., miss 3, 3 d.c. on 3 ch., 3 ch., miss 3, 4 d.c. on four, 2 d.c. on the last, 3 ch., ×

13th: Begin and end as usual. On each division do × 2 d.c. on one, 8 d.c. on 8, 4 ch., miss 3, 8 d.c. on 8, 2 d.c. on one, 3 ch., ×

14th: All d.c., increasing so as to have 26 on each side of the octagon, with the usual 3 ch. between the divisions.

15th: Begin and end as usual. Work on each part × 7 d.c. on 7, * 2 ch., miss 1, 1 d.c., * twice; 2 ch., miss 2, 1 d.c., 2 ch., miss 1, 1 d.c., 2 ch., miss 2, 8 d.c. on 8, 3 ch., ×

16th: Begin and end as usual. Work on each part × 2 d.c. on 1, 4 d.c. on 4, 2 ch., miss 2, 14 d.c. on 14, 2 ch., miss 2, 5 d.c. on 5, 2 d.c. on 1, 3 ch., ×

17th: Begin and end as usual. × 2 d.c. on 1, 3 d.c. on 3, 2 ch., miss 2, 6 d.c. on 6, 2 ch., miss 2, 1 d.c., 2 ch., miss 1, 1 d.c., 2 ch., miss 2, 5 d.c. on 5, 2 ch., miss 2, 4 ch. on 4, 2 d.c. on 1, 3 ch., ×

18th: Begin and end as usual. × 2 d.c. on 1, 4 d.c. on 4, 2 ch., miss 2, 6 d.c. on 6, 2 ch., miss 2, 13 d.c. on 13, 2 ch., miss 1, 4 d.c. on 4, 2 d.c. on 1, 3 ch., ×

19th: Begin and end as usual. × 6 d.c. on 6, 2 ch., miss 2, 6 d.c. on 6, 2 ch., miss 2, 3 d.c. on 3, 2 ch., miss 1, 1 d.c., 2 ch., miss 2, 1 d.c., 2 ch., miss 1, 4 d.c., 2 ch., miss 2, 6 d.c., 3 ch. ×

20th: Begin and end as usual. × 2 d.c. on 1, 5 d.c. on 5, 2 ch., miss 2, 6 d.c. on 6, 2 ch., miss 2, 3 d.c., 2 ch., miss 2, 12 d.c., 2 ch., miss 1, 5 d.c., 3 ch., ×

21st: Begin and end as usual. × 9 d.c., 3 ch., miss 2, 9 d.c., 2 ch., miss 2, 3 d.c., 2 ch., miss 2, 1 d.c., 2 ch., miss 2, 4 d.c., 2 ch., miss 2, 4 d.c., 2 d.c. in 1, 3 ch., ×

22nd: Begin and end as usual. × 10 d.c., 2 ch., miss 2, 9 d.c., 2 ch., miss 2, 3 d.c., 2 ch., miss 2, 7 d.c., 2 ch., miss 2, 5 d.c., 2 d.c. in 1, 3 ch., ×

23rd: Begin and end as usual. × 2 d.c. in 1, 11 d.c., 2 ch., miss 2, 12 d.c., 2 ch., miss 2, 7 d.c., 2 ch., miss 2, 6 d.c., 2 d.c. in 1, 3 ch., ×

24th: Break off the thread in this and following round, and begin at the beginning of a division of the octagon, instead of at the last stitch as hitherto. × 14 d.c., beginning on the *second* in the division, 2 ch., miss 2, 8 d.c., 2 ch., miss 2, 9 d.c., 2 ch., miss 2, 7 d.c., 3 ch., d.c. on the centre of the 3 chain of last round, 3 ch., ×. [Work in the ends of cotton as you go on, and slip on the first stitch at the end of every round.]

25th: × miss the first d.c. of the last row, 1 *diminished* stitch on the 2 next, 12 d.c., 2 ch., miss 2, 12 d.c., * 2 ch, miss 2, 4 d.c., * twice; 1 diminished stitch on the next 2, † 2 ch., miss 1, 1 d.c., † 4 times, 2 ch., ×.

26th: × 1 diminished d.c. stitch on the two first of 12, 11 d.c., 2 ch., miss 2, 9 d.c., 2 ch., miss 2, 5 d.c., 2 ch., miss 2, 3 d.c., 1 diminished d.c., 1 ch., miss 1, 1 d.c., 2 ch., miss 1, 1 d.c., 2 ch., miss 2, 4 d.c., 2 ch., miss 2, 1 d.c., 2 ch., miss 1, 1 d.c., 1 ch., ×.

27th: × 1 diminished d.c. on two first of 11, 10 d.c., 2 ch., miss 2, 8 d.c., 2 ch., miss 2, 4 d.c., 2 ch., miss 2, 2 d.c., 1 diminished d.c., 3 ch., miss 2, 1 d.c., 2 ch., miss 2, 10 d.c., 2 ch., miss 1 d.c., 3 ch., miss 2, ×.

28th: 1 diminished d.c. (beginning on the same of last round), 6 d.c., 2 ch., miss 2, 3 d.c., 2 ch., miss 2, 4 d.c., 2 ch., miss 2, 5 d.c., 2 ch., miss 2, 2 d.c, 1 diminished d.c., 2 ch., d.c. on centre of 3 ch. in last round, 2 ch., miss 1, 7 d.c., 2 ch., miss 2, 7 d.c., 2 ch., miss 1, d.c. on centre of 3 ch., 2 ch., ×.

29th: × 5 d.c., beginning on the diminished stitch of last round, 2 ch., miss 2, 6 d.c., 2 ch., miss 2, 10 d.c., 2 ch., miss 2, 3 d.c., 3 ch., miss 2, 7 d.c., * 2 ch., miss 2, 1 d.c., * twice, 2 ch., miss 2, 7 d.c., 3 ch., miss 2.

30th: × (begin on the second of 5 d.c.) 4 d.c., 2 ch., miss 2, 8 d.c., 2 ch., miss 2, 6 d.c., 2 ch., miss 2, 4 d.c., 2 ch., miss 1, * 1 d.c., 2 ch., miss 2, * twice, 7 d.c., 2 ch., miss 2, 7 d.c., † 2 ch., miss 2, 1 d.c., × twice; 2 ch., miss 1, ×



MUSIC-STOOL COUVRETTE.

31st: × (begin on the second of 4 d.c.) 5 d.c, 2 ch., miss 2, 6 d.c., 2 ch., miss 2, 4 d.c., 2 ch., miss 2, 5 d.c., 1 ch., miss 1, 1 d.c., 2 ch., miss 1, * 1 d.c., 2 ch., miss 2, * three times, 10 d.c., † 2 ch., miss 2, 1 d.c., † 3 times, 2 ch., miss 1, 1 d.c., 1 ch., miss 1, ×.

32nd: × (begin on the second of 5), 6 d.c., 2 ch., miss 2, 2 d.c., 2 ch., miss 2, 4 d.c., 2 ch., miss 2, 6 d.c., 3 ch., miss 2, 5 open squares, 1 close, 5 open, 1 d.c., 3 ch., miss 2, ×.

33rd: × (begin on the second of 6), 7 d.c., * 2 ch., miss 2, 1 d.c., * twice; 2 ch., miss 2, 7 d.c., 2 ch., miss 1, 13 open squares, 1 d.c., 2 ch., miss 1, ×.

34th: × (begin on the second of 7), 1 diminished stitch, 16 d.c, 1 diminished, 2 ch., miss 1, * 3 open squares, 1 close * 3 times, 3 open squares, 1 d.c., 2 ch., miss 1, ×.

35th: × (begin on the first of 16), 1 diminished, 5 d.c., 2 ch., miss 2, 5 d.c., 1 diminished, 2 ch., miss 1, 1 d.c., 2 ch., miss 1, 2 open squares, * 1 close, 1 open, * 6 times, 1 d.c., 2 ch., miss 2, × 1 d.c., 2 ch., miss 1, † twice, ×.

36th: (begin on the first of 5), 1 diminished, 1 d.c., 2 ch., miss 2, 2 d.c., 2 ch., miss 2, 1 d.c., 1 diminished, × 2 ch., miss 1, 1 d.c., * twice, † 2 ch, miss 2, 1 d.c., 2 ch., miss 2, † 1 close square, 3 open, † 3 times, 1 close, 2 open, ‡ 1 d.c., 2 ch., miss 1, ‡ twice, ×.

37th: × (begin on the 1 d.c.), 1 diminished, 1 d.c., 2 ch., miss 2, 1 d.c., 1 diminished, * 2 ch., miss 1, 1 d.c., * twice, † 2 ch., miss 2, 1 d.c., † 3 times, 2 ch., miss 2, ‡ 1 close, 1 open square, ‡ 6 times, 3 more open, 1 d.c., 2 ch., miss 1, 1 d.c., 2 ch., miss 1 ×.

38th: × (begin on 1 d.c.), 1 d.c., 1 diminished over the 2 ch., 1 d.c., 2 ch., miss 1, 1 d.c., 2 ch., miss 1, 6 open squares, * 1 close, 3 open, * twice, 1 close, 6 open, † 1 d.c., 2 ch., miss 1, † twice ×. Finish this round, like all the preceding, since the direction, with a slip stitch on the first stitch of the round. Then a round of open square crochet, the d.c. stitches coming on those of the last round, and allowing 2 ch. over the one diminished stitch at every point. The 40th round is entirely in d.c.

For the Band.—Make a chain of 624 stitches, and close in a round, on which work a round of d.c.

2nd round: Open square crochet.

3rd: × 4 open squares, 2 close, 2 open, × 26 times.

4th: × 3 open, 2 close, 1 open, 1 close, 1 open, × 26 times.

5th: × 2 open, 1 close, 1 open, 1 close, 1 open, 1 close, 1 open, × 26 times.

6th: × 1 open, 2 close, 1 open, 1 close, 3 open, × 26 times.

7th, 8th, and 9th: × 1 open, 2 close, 2 open, 1 close, 2 open, × 26 times.

10th: × 2 open, 3 close, 3 open, × 26 times.

11th: Open square crochet.

12th: D.c.

Edging.—One pattern takes up the space of a pattern of the band, consequently there are 26 in the round. Each is finished before proceeding to the next. The band and edging may be done entirely without breaking off the thread, therefore continue for the latter, after closing the former. 12 s.c., 12 ch., close it into a round, under which work 23 s.c.; 9 s.c. on the edge of the band; turn the work on the wrong side,—7 ch., miss 5 of the 23 on the round, s.c. under the 6th, × 5 ch., miss 3, s.c. under 4th, × 3 times; 7 ch., s.c. under 4th of the 12 s.c. (leaving a space of 8 to the loop). Turn on the right side, and work under each loop of 7, 1 s.c., 2 d.c., 4 t.c., 2 d.c., 2 s.c., and under the other loops, 2 s.c., 4 d.c., 2 s.c., 2 s.c. more on the band complete one pattern.

Fasten to the round with a row of s.c., taking a stitch of each.

Note.—It is to be remembered that each round begins with a d.c. of 3 ch., and 3 ch., after which the pattern between the × × is done 7 times throughout, and the eighth time the last d.c. and 3 ch. are omitted, being worked at the commencement of the round. To write this at the end of every round would make the directions tediously long, and the worker can find no difficulty if observing this note.

HONITON SPRIG (IN CROCHET.)

Materials.—Goat's Head Cotton, No. 60; Crochet-hook, No. 24.

6 ch. for the end of the stem. *Leaf:* 14 ch., miss 2, 9 d.c. on the next 9, 2 s.c., 1 slip, 24 ch., miss 3, 2 d.c. in next, 2 d.c. in next, 9 d.c. in the next 9, 2 s.c. in the next two, slip in the next, which leaves 7 for the stem. Slip stitch on the 2 s.c., and 7 of the d.c., taking great care not to contract the leaf, 10 ch., miss 4 d.c. in the fifth, × 2 ch., miss 2, t.c. in 3rd, × twice, 2 ch., miss 2, d.c. in 3rd, 2 ch., miss 2, s.c. on 3rd, 1 ch., miss 1, slip at the base of the flower. Do 9 slip stitches up the last row, the open hem of which forms the centre of the flower; then 11 ch., miss 3, 2 *contracted* d.c. stitches on the next 4, d.c. down all but the last 3, 2 s.c., 1 slip. The flower thus formed consists of an open hem for the centre petal, and a closer petal on each side. Work entirely round the flowers in s.c.

S.c. on the seven chains of the stem, before you get to the leaf, opposite which make another, exactly like it. S.c. to the end of the stem, and fasten off.

THE FOUR AGES; FROM DESIGNS BY T. JOHANNOT.



I.—INFANCY.

Simonides, the first of the Greeks who wrote a satire, was the inventor of the fable which represents Jupiter as having, after the creation of the world, distributed amongst all the animals those qualities which were necessary for their sustenance and safety. The lion he made bloodthirsty, but courageous; the hare timid, but swift of foot; and the fox weak and comparatively slow, but cunning. Having bestowed something good upon all, man he made the repository of all those vices or failings which had been *divided* amongst the other members of the animal kingdom. To him he gave the cruelty of the tiger, the cowardice of the hare, the deceit of the fox, and the sloth of the ass, and not one redeeming trait was to be found in this great mass of deformity.

This hideous picture was without doubt sketched in a spirit of coarse misanthropy. The few lines of truth it may contain are lost sight of in the overdrawn details of the surrounding monstrosities. And even in this churlish mood the poet has unconsciously acknowledged the greatness of the human heart, when

he declares that it can contain so many vices. But the fable, hideous as it may seem, is not without its moral. Let us be ever so sensitive to any slights thrown upon the dignity of human nature, we cannot deny that man's position on his entry into the world has furnished at least some groundwork for the poet's fancy. His existence for the first few months of his life is purely animal. What there is within him of spirit and intellect is still latent and undeveloped. Animal wants are the only signs of life which the young infant gives, and the interval during which they cease to annoy is passed in dreamless sleep. The future lord of the creation comes on earth more helpless, less active, and with less adaptability to surrounding circumstances than the beasts that perish. He sees without recognising or remembering, and hears without understanding. At this stage all is material; and the after progress is but the increasing manifestation of the spiritual growth which is going on within.

From the remotest ages of antiquity, a comparison has been drawn between the life of man and the seasons of the year. The spring, the infancy, boyhood, and youth; the summer, the prime and vigour of manhood; the autumn, the slow decay; and the winter, "the labour and sorrow" and departure. The simile was originally beautiful; but is now so hackneied that it has lost its charm, but its truthfulness is nothing the less. It may inspire mournful reflections, but to many it may call up joyous recollections. Its worst aspect appears when we push it beyond the single rolling year. Spring and summer, autumn and winter, recur in the natural world in one unvarying cycle—

> "But when will spring visit the mouldering urn,
> Oh when will it dawn on the night of the tomb!"

As Time, the "pitiless monster," hurries us on with remorseless goad, who among us does not cast longing, lingering looks, towards the spring-time of life, when the period of squalling helplessness being passed, the faculties began to awaken, and everything in the world looked fresh. At no period of man's existence is he so powerfully impressed by strength, or magnitude, or distance, or height, or depth, or speed, or splendour. Having no previous experience of any kind whatever, and, consequently, no ground on which to institute comparisons, everything around him appears to the infant, in some sort, the type of the class of objects to which it belongs. The house in which he has been born, and the garden in which he has been accustomed to play, are the world, and all beyond the horizon is unknown space. His father is, of necessity, the strongest, the wisest, the most learned, and most powerful of men; the authority exercised by him is paramount to all other, and the punishment inflicted by him the highest known to the law; his mother the embodiment of generosity, kindness, goodness, and knowledge; the dog the best of dogs; the horse the strongest and swiftest of horses. Everything around wears the hue of morning ere the freshness of its tints begins to fade before the glowing heat of mid-day. Not having yet learned to lie, the child knows not the unhappiness of doubting, and, unlike the youth, knows nothing of the chagrin of unlearning the early lessons of truthful confidence. His limited experience, strange as it is, is the chief cause of his happiness, for the inexperienced are always sanguine as to the future. Having known no sorrows, he fears none. Never having been disappointed, seeing those around him prepared with every resource for the supply of his most trifling wants; the infant cannot conceive the possibility of their ever failing him. Consequently, needing no thought for the future, his only aim is to enjoy the present hour. A continued round of innocent pleasures, interrupted only by trifling childish griefs, scarcely felt and soon forgotten, fill up the first seven years of our lives. We ever regret that obscure irresponsibility—that freedom from care—those unblighted hopes—and that unclouded future; those careless wanderings in the field when selfishness was scarce a fault, for our very helplessness was a claim upon the kindness and forbearance of all around. But the strongest link which binds us to those early days is the memory of lost friends, who in the after journey of life have fallen around us "like leaves in wintry weather." The thousand winning ways, the smiles, the kisses and the presents of those around us in our infancy, are rarely, if ever, forgotten, and many a grown man starts and shudders as he looks back upon the great chasm of time and sorrow which divides him from those long gone years when he climbed their knees, and was soothed by their caresses.

> "Heu! nescia mens hominumque futuri."

How many would recoil from the dangers of the stormy voyage of life, and cling to that long-lost haven, did they but know the dangers and sorrows that awaited them! and how many, when the gulf has once been crossed, of which, like the fabled Styx, the exile is eternal, stand upon the further shore, and stretch their hands back towards that sunny region with unavailing lamentation! If they had not then the lore of many an age, and ponderous volume, they had had no morns of toil or nights of waking; they may not have had enlarged views, nor expanded intellect, but neither had they their attendant cares and responsibilities; they were not wise, but they were not cold and heartless; they had no experience, but they had not suffered deeply from the consequences of a thousand errors.

By one of those wise and merciful dispensations of Providence, which fix our admiration but defy our scrutiny, and which, at the same time, by the unvarying nature of their operation, excite little attention from the crowd, men are not suddenly snatched from the joys of childhood, and plunged without preparation into the turmoil of life. There is an intermediate process to be undergone, by which the change is brought about by slow degrees, and which is generally known as *education*. But, while under its operation, the unavoidable temptations and allurements of the world—the lust of the flesh, and the lust of the eye, and the pride of life—tear away many of the best and finest impressions of their infancy; so that it is a question whether the knowledge we acquire be not often dearly bought by the loss of pristine purity and truthfulness. Many would, doubtless, repl , "pity 'tis, 'tis true;" but all must acknowledge that the evil is in a great measure unavoidable. But there are some impressions which time, and vice, and turmoil, and adventure can never wear out, for they are graven on our hearts—those left by a mother's earliest lessons. Those who feel the truth of this—and who does not?—will enter at once into the spirit of our engraving, and feel the dearest and tenderest recollections of their lives stealing across their souls like a vision from a better land, where care and sorrow are alike unknown.

There is a mighty spell in sacred memories, a surer defence against the seductions of falsehood, chicanery, and dishonour, than all the wisdom of philosophy, or all the irascible pride of mere doctrinal belief. If they be but treasured up, they grow with a man's growth, and strengthen with his strength, and become at last a strong tower against the face of his enemies. Many a one has been saved from ruin, has been stimulated to higher efforts, and has felt nobler hopes, and holier aspirations aroused within him, by the still small voice of the teachings of his infancy. We fear to disappoint the expectations formed of us in childhood, and if "the forms of the departed, the beloved, the true-hearted" linger round us, we dare not shrink from the combat. It was a resolution formed in boyhood, on the banks of the Dayle, that sustained the great pro-consul of India through all the vicissitudes of battle and siege, intrigue, violence, and persecution, and brought him at last, true as the magnet to the pole, to lay down his wearied head in the halls of his ancestors. But he had no mother to chasten, purify, and guide that "unconquerable will and courage never to submit or yield," or he might have left his name and memory to foreign nations and the next age, without one stain to damp our admiration of that proud heart and lofty intellect.

It is then not only pleasant, but profitable to dwell upon the dreams, and hopes of childhood.—

> "Not wholly can the heart unlearn
> Those lessons of its better hours,
> Ne'er yet has Time's dull footstep worn
> To common dust that path of flowers.
>
> "Thus while at times before our eyes
> The shadows melt and fall apart,
> And smiling through them round us lies
> The warm light of our morning skies—
> The Indian summer of the heart!
>
> "In secret sympathies of mind,
> In founts of feeling which retain
> Their pure, fresh flow, we yet may find
> Our early dreams not wholly vain."

STATISTICS OF THE COTTON MANUFACTURE OF GREAT BRITAIN.

The cotton manufacture may be said to have been commenced in England about the year 1641, for in that year it is recorded that Manchester "bought cotton wool that comes from Cyprus and Smyrna, and worked the same into cloths, which are sent to London and there sold." By the year 1697 this important branch of our national industry may be said to have taken root.

In the year 1697, we imported into this country 1,976,359 lbs. of raw cotton, or cotton wool. In 1850 we imported 563,576,816 lbs., an amount less than that of 1849, in which year 755,469,012 lbs. were imported. Of the quantity imported in 1850, 493,153,112 lbs. came from the United States, 30,299,982 lbs. from Brazil, 118,872,742 lbs. from the East Indies, 18,931,414 lbs. from Egypt, 228,913 lbs. from the West Indies, and 2,098,698 lbs. from various other parts of the globe: 102,469,696 lbs. of this raw cotton were again exported. The quantity consumed in the manufactures of the United Kingdom in 1850 was 584,200,000 lbs.; in 1849 it was 629,900,900 lbs., the largest amount ever consumed in one year.

In the spinning of this raw cotton into yarn, and weaving the yarn into calico, there were employed, in 1,932 factories, 330,924 people (141,501 males, and 189,423 females), of whom 9,482 were males and 5,511 females under thirteen years of age; 183,912 were females above thirteen years of age; 37,059 were males between thirteen and eighteen years of age, and 94,960 were males above eighteen years of age.

The number of spindles for spinning the yarn was 20,977,017, and the number of power-looms for weaving the calico, 249,627. These spindles and power-looms were kept in motion by the aid of 71,005 horse steam-power and 11,550 horse water-power.

Including the hand-loom weavers, and the vast multitude of persons employed in domestic branches of the cotton manufacture, in calico printing, machine making, or as clerks, packers, overseers, &c. &c., we cannot estimate the whole number of persons at less than 900,000.

The counties in which these cotton factories are situated, are as follows; viz., in *England*—Lancashire, 1,235; Yorkshire, 227; Cheshire, 145; Derbyshire, 74; Nottingham, 19; Middlesex, 17; Cumberland, 11; Stafford, 10; Leicester, 7; Surrey, 3; Norfolk, 2; Warwick, 2; Gloucester, 1: total, 1,753.

In *Scotland*—Lanark, 94; Renfrew, 51; Bute, 4; Dumbarton, 4; Stirling, 4; Ayr, 4; Perth, 3; Aberdeen, 2; Linlithgow, 1; Kircudbright, 1: total, 168.

In *Ireland*—Dublin, 3; Antrim, 3; Armagh, Kildare, Louth, Waterford, and Wexford, each 1: total, 11.

In 1697, the total value of cotton goods exported was £5,915; in 1850 it amounted to £28,257,401. The best customers for our cotton goods are the countries whence we import the raw material.

There are no means of ascertaining the total quantity of cotton goods annually manufactured; we can only obtain correct information as to the quantity of these goods exported. In 1850, we exported 1,358,182,941 yards of plain and printed calicoes, 114,074,971 yards of lace and bobbin net, 4,357,195 lbs. of cotton thread for sewing, 237,828 dozen of cotton stockings, besides various small articles to the value of £235,495, and 131,370,368 lbs. of cotton yarn.

The yarn spun in 1850 would, in a single thread, pass round the globe 407,550 times; it would reach 102 times from the earth to the sun, and encircle the earth's orbit 17 times. The plain and printed calico *exported* (to say nothing of that used at home) would form a girdle for the globe, passing nearly thirty times round the equator.

Some idea of the producing power of machinery may be formed from the consideration of the fact, that to spin the cotton wool, now annually used, into yarn, would require 80,000,000 spinsters constantly working at the one-thread wheel, such as was universally employed prior to the inventions of Wyatt, Arkwright, and Crompton.

In 1850, the cotton manufactures of Great Britain consumed as much raw material as all the chief manufacturing countries of Europe and the United States of America put together. The following may be considered as a correct account of this comparative consumption of raw cotton, in 1850, in the countries specified:—Great Britain, 584,000,000lbs.; Russia, Germany, Holland, and Belgium, 133,000,000lbs.; France (including adjacent countries), 142,000,000 lbs.; Spain, 29,000,000lbs.; countries on the Mediterranean, Egypt, &c., 11,000,000lbs.; countries bordering on the Adriatic, 45,000,000lbs.; United States of America, 188,000,000 lbs. Total, 1,132,000,000 lbs.

Since writing the above, the Board of Trade Returns for 1851 have been presented to Parliament, from which we obtain the following statistics of the cotton manufacture in that year. The total quantity of raw cotton imported was 757,379,840 lbs., being the largest quantity ever imported in one year; of this, 596,634,752 lbs. were imported from the United States of America; 122,627,008 lbs. from British India; 19,339,040 lbs. from Brazil; 14,715,904 lbs. from Egypt; and 4,063,136 lbs. from other parts. Of this quantity 111,943,216 lbs. were re-exported to various parts, chiefly to Russia and the continent of Europe.

We next notice the export of our cotton manufactures for 1851; and here we find a very considerable increase on the amount exported in 1850, although that year was far more favourable than any that had ever preceded it.

The following are the particulars of British cotton manufactures exported in 1851:—1,537,904,162 yards of plain and printed calicoes and cotton goods, valued at £22,040,489; 104,947,998 yards of lace and patent net, valued at £561,150; 4,349,288 lbs. of thread for sewing, valued at £452,769; 507,750 dozen pairs of stockings, valued at £197,420; sundry articles of the value of £195,275; and, lastly, 143,958,501 lbs. of cotton-yarn, valued at £6,631,896; forming a sum total of £30,078,999, or more than three-sevenths of the whole exports of the United Kingdom.

The value of manufactured cotton goods imported in 1851 from India and other parts, was £502,869, and of cotton-yarn £103,586; the former of these to the amount of £200,635 were re-exported, and the latter to £91,480.

ASTRONOMICAL STATISTICS.

At the annual public sitting of the members of the French Institute, M. Arago, the Astronomer-Royal of France, in addressing the assembled conclave of the most eminent men of science in France, on the physical constitution of the sun and stars, observed: "It is only within a few years that we have become acquainted with the distance which separates us from the nearest stars. This distance is about 206,000 times that of the sun from our earth—more than 206,000 times 38 millions of leagues!

"Alpha, in the constellation of Centaur, is the nearest star to us, the light from which takes three years to arrive at our earth; so that, if Alpha were blotted out of creation, we should not be aware of the fact until three years after its occurrence. When we recall to our recollection the circumstance that light travels 77,000 leagues per second—that a day is composed of 86,400 seconds, and a year of 365 days—the mind becomes bewildered at the contemplation of such immensity. Were the sun, with its broad and ample disc, removed to a distance from us as great as that of the nearest star, it would appear to us, even by the aid of our most powerful glasses, but of very diminutive size, whilst its brightness would be equal only to a star of the third magnitude.

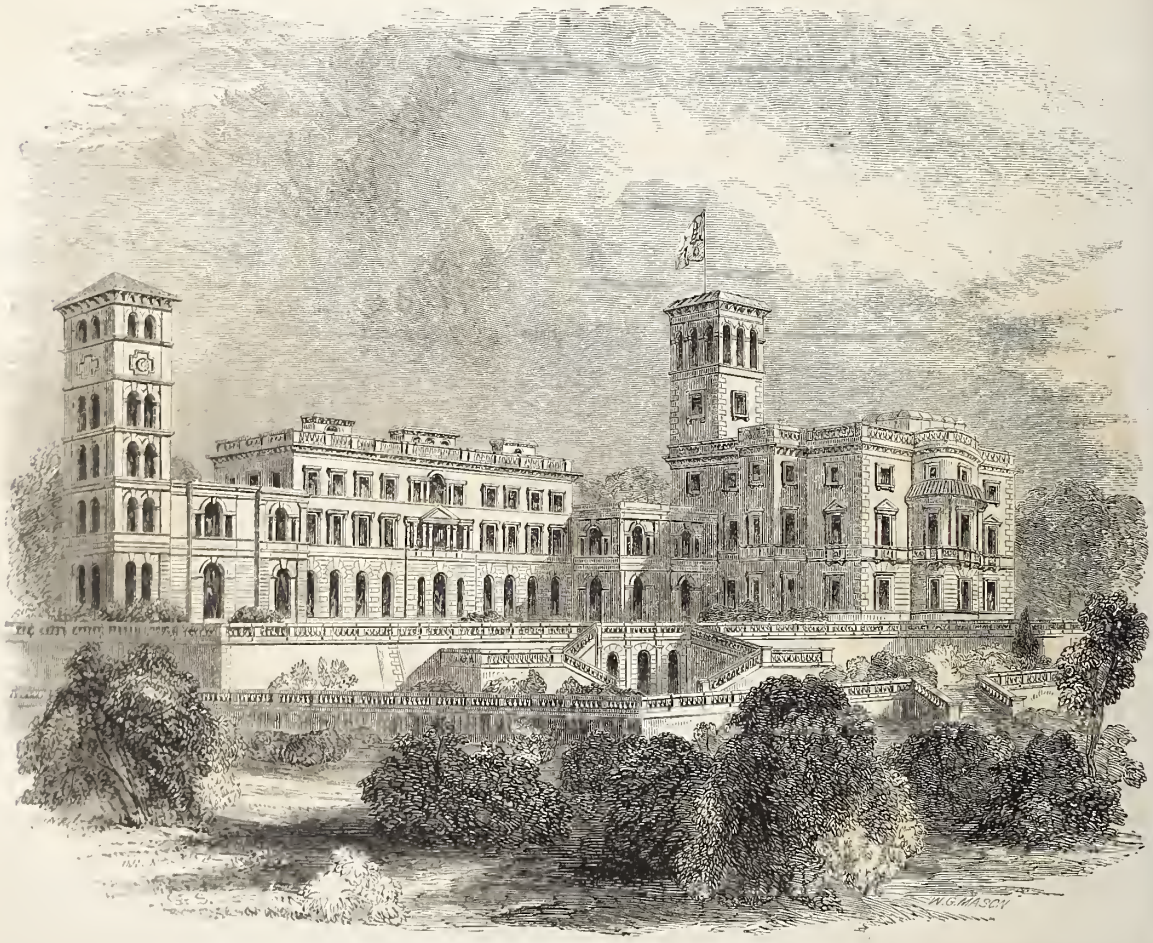
"The number of stars made visible to us by means of our most powerful telescopes, is upwards of 40 millions—40 *millions of suns!*—the distance of the most remote from others being such as to require a period of from 3,000 to 4,000 years for the light to pass from one to the other.

"A photometric (or light-measuring) experiment of Wollaston showed, that it would require the united brilliancy of 20,000 millions of such stars as Sirius—the brightest star in the firmament—to shed a light over our globe equal to that of the sun."

OSBORNE, ISLE OF WIGHT.

Perhaps no royal palace is better known to our countrymen than Osborne. In these days of cheap excursions, there are few who have not seen the national standard waving from its walls, and, on a bright summer day, there are few who have not felt that royalty did well when it chose Osborne for a home. Here, at least, her Majesty may unbend; here, at least, the heart within her may commune with nature. Wood and water, hill and dale, a blue heaven above, and a green earth beneath;—these give Osborne a proud pre-eminence over Buckingham and St. James's palaces, or even over Windsor's royal pile. Like ordinary mortals, royalty needs sea-air; and at Osborne it may be breathed fresh and pure. In one respect Osborne differs from its associate palaces. It has no historic interest attaching to it. The glory or the shame of our other royal residences belongs not to it. Here no great national pageant has been acted—no dark deed has been done. Osborne tells of what palaces seldom are fated to behold—of a domestic life and love as calm and precious as it is rare. To our eyes, then, Osborne has a peculiar charm. We love it as a happy English home. Osborne is rich in that treasure without which life were a bitter failure, and vain and worthless were the pomps of royalty or the jewels of the crown.

What few particulars we can glean of Osborne can soon be told. It is beautifully situated in the neighbourhood of East Cowes. The mansion is placed in a fine park well stocked with timber, and adjoining eastwards the grounds of Norris Castle, the residence of her present Majesty and the Duchess of Kent in the summer of 1831. The views from Osborne are extensive and of varied beauty, though certainly not equal to the prospect from Norris Castle, which latter commands the Southampton water and the roadstead of Cowes, while Osborne takes a more easterly range, including Portsmouth, Spithead, &c., being shut out by the high grounds of Norris from the views to the westward. Very little of the mansion is seen from the high road, but in sailing along the coast, as in the steamers from Ryde to Cowes, the place is seen to great advantage, and appears to be situated at the head of an ample lawn, which slopes gently to a valley open to the sea-beach. The whole park, strictly private, extends down to the sea, with good landing-places. The mansion was in the occupation of Eustace Mann, Esq., during the civil wars between Charles I. and his parliament. There is a copse adjoining, called Money Copse, where the proprietor, it is said, during the wars, buried all his money, plate, &c., and, on searching for it again, it could not be found. According to tradition, the property still remains secreted. If it be so, we trust her Majesty may be so fortunate as to secure the long lost treasure, but, for ourselves, we doubt the story—we know rumour to be such a lying jade. Her Majesty first hired Osborne in 1844. It was then the property of Lady Isabella Blachford, of whom it was ultimately purchased. Then it was very unfit for a royal residence. Since then the place has been completely altered and enlarged. Osborne offers some advantages for Prince Albert in the well-known and highly-popular character of a British farmer. Osborne-park and wood, with gardens, contain 346 acres, the whole of which is freehold. The farm adjoining is freehold, and contains 424 acres. Here the Prince pursues agriculture with his accustomed enterprise and skill, and here his birthday is celebrated by the labourers in good old English style. The last time we were at Osborne one of these annual celebrations occurred. It was a great day for Cowes, and on happy hearts looked down a glorious sun. Long may such anniversaries occur. At Osborne we may be sure they are looked forward to with joy, and their memory is held dear.



THE MARINE RESIDENCE OF HER MAJESTY QUEEN VICTORIA.

ELEVATION OF AN ANCIENT KING.

The earliest and most natural mode of government was the patriarchal. In the first ages of the world, before the increase of population, or the extension of arts or commerce, mankind formed but a number of tribes or families, and the oldest member of each was at the same time its ancestor and ruler. This was the mode which prevailed in the days of Abraham, and which has been preserved amongst the Bedouin Arabs; to this, of course, succeeded election, when the population became so numerous and extended that the degrees of affinity could no longer be observed or remembered with accuracy, and the respect paid to seniority was diminished by lapse of time. Of course the rule could never be strictly observed. Force or fraud often gained what a man's virtues or abilities were not sufficient to procure for him, and the merits of a great hero or lawgiver were often imputed to his children or his children's children, so that they were suffered to succeed him merely because he was their father. The people are ever more prone to remember services or favours with gratitude, than to assert their rights with inflexible sternness. In Greece



the kings became, in process of time, hereditary, their subjects, however, reserving to themselves the right of deposing them for any breach of their liberties. The first king of Israel was chosen of God, and when He had ceased to interfere in the affairs of the nation, the succession appears in a majority of instances at least to have been allowed to pass in the hereditary line without dispute. The history and crimes of royalty in Rome are doubtless present to the minds of all our readers.

But between all the organizations in which society and states are presented to us in ancient times, and that which prevailed amongst the tribes who overthrew the Roman empire, there was an immense difference. In the former every man was proud of the state or commonwealth to which he belonged—its name, its power, its glory. He and his fellows were nought but cogs in a great wheel. To promote its aggrandizement, he was ready at all times to risk or sacrifice his life and limbs and earthly honour, the safety and comfort of his wife and his family, and the security of his property. Every one was merged in the great mass; standing alone each was but a cipher—nothing by itself, but deriving all its value from the units placed beside it.

Amongst the German tribes the case was widely different. Here the individual was everything, and the tribe or state nothing. No restraint could be placed upon personal liberty except for the gravest offences, and then only by the solemn judgment of the whole of the culprit's peers. The development of this principle naturally fostered the growth of strong wills and strong passion, and their annals are disgraced on every page by the recital of acts of wild and brutal violence. But under the softening and civilizing influence of christianity, it proved itself the surest bulwark of liberty. It may naturally be expected that men so jealous of their freedom would never tolerate the supremacy of a despot. In peace each pretty much followed his own inclination, avenged his own wrongs, and asserted his own rights. The little authority possessed by the chief was seldom, if ever, exercised. He was never regarded as more than the first of a band of equal warriors; and as it was in war that his duties became really onerous, he was generally chosen for the adventitious attributes of physical courage and beauty, or great personal strength. The phrase "elevate to the throne" was then literally correct. The ceremony from which it took its origin has long ago fallen into disuse; but in most European languages, the sentence which stands at the head of our article is still retained as expressive of the succession or election of a monarch to the supreme power of a state. In the Merovingian era, and the old time before it, that long buried but romantic period which Augustin Thierry, the most devoted and enthusiastic of modern historians, has brought so vividly before our eyes, with all the freshness of actuality, the fierce warriors who peopled the forest and valleys of Germany and Gaul chose their chieftains with the barbaric ceremonial represented in our engraving. Amongst the Franks elevation on a shield was one of the essential formalities belonging to the election, and various

authorities might be quoted to prove that the custom was equally prevalent amongst all the other tribes. The object of their choice was placed upon an upturned buckler, and carried on the shoulders of four of the stoutest of his followers three times round the assembly, amidst the acclamations of the leudes and ahrimans. Nothing with which we are familiar in modern times can convey to the mind of the reader any vivid idea of these singular but impressive scenes. They always took place in the open plain outside the towns, and generally under the walls of the church. Here the whole of the conquering nation assembled in arms. It was looked upon as a bad omen if the new king did not preserve an upright and easy posture upon the shield during his progress round the circle. The unfortunate Gondovai, the descendant of Clothaire, whom the leudes of the south set up in opposition to Goutran and Childebert, after having preserved his footing during the two first rounds, stumbled in the third, and only saved himself from falling by leaning on the shoulders of his bearers. His followers from that moment despaired of success.

This custom continued in vogue amongst the Franks down to the reign of Pepin, but from that time it began to disappear, either from the increase of civilization, or more probably under the influence of the clergy, who endeavoured to substitute in favour of the Carlovingians the Judaic ceremony of consecration and anointing. Among the country people, who always cling with tenacity to ancient usages, particularly beyond the Rhine, traces of the old mode of election might be found for centuries afterwards. In Franconia, in the sixteenth century, the peasantry raised in the air three times with loud cries him whom chance had made "King of the pfennig," a piece of money placed in a cake baked by the oldest man in the village on Twelfth Night, like our custom of placing a ring in the pancakes on Shrove Tuesday.

A VISIT TO A SUGAR REFINERY.

If in ordinary company the question were asked, "What is sugar?" how few of us could give anything like a satisfactory reply. To be sure, we most of us know that it is a vegetable extract which comes from the West Indies, and which is used to sweeten our tea and coffee, and pies and puddings, and is often employed to render the medicines we like to give our little ones somewhat less nauseous; but of its modes of preparation or chemical constituents we are, most of us, content to know very little indeed. In this paper it is proposed to briefly review the progress of sugar, from its growth in the cane to its appearance in sparkling white lumps, such as is daily used in domestic life.

Sugar,—in French, *sucre;* in German, *zucker;* in Latin, *saccharum,*—is the sweet constituent of vegetable and animal matter, found almost universally in greater or lesser quantities in every kind of vegetable product. It may be divided, Dr. Ure informs us, into two principal varieties: the first, which occurs in the sugar-cane, the beet-root, and the maple, crystalizes in oblique four-sided prisms, terminated by two-sided summits, and has a sweetening power which may be reckoned as 100; the second occurs ready-formed in ripe grapes, figs, dates, and other fruits, the crystals of which are not what are called *true* crystals; and the sweetening power, as compared with the first, may be represented at 60. Besides these two principal kinds, there are the sugar of milk, manna, mushrooms, liquorice-root, parsnips, and sawdust! but of these, and various other sorts, we need make no further mention. The sugar of commerce, whether extracted from the cane, the beet-root, or the maple, consists of oxygen, carbon, and hydrogen, in about the following proportions, as given by various chemists:—

	Gay Lussac and Shenard.	Berzelius.	Prout.	Ure.	
Oxygen	50·63	49·856	53·35	50.33	in 100
Carbon	42·47	44·069	39·99	43.38	,,
Hydrogen	6·90	6·875	6·66	6·29	,,

The sugar cane (*Arundo saccharifera*), is a plant of the graniferous family; and varies in height from eight to ten or even twenty feet. It is about an inch and a half in diameter, with a stem of a green hue, verging to yellow as it approaches to maturity, and divided into annular joints of a whitish yellow colour, about three inches apart. The cane is of a dense and brittle character, decorated with long, flat, straight, pointed leaves, three or four feet in length, which fall off as the plant ripens. It is propagated either by seeds or cuttings, and is found in a wild state in the West India islands and the adjacent continent, and in many parts of the eastern hemisphere. Humboldt asserts that, before the discovery of the New World by the Spaniards, the home of the sugar cane was the interior of Asia, whence it was transplanted into Cyprus, and thence into Sicily. The history of the plant, the product of which is now so well known, may be briefly stated. It is related by Lafitan, that in 1148, William II. king of Sicily made a present to the monastery of St. Benoit of a mill for crushing the cane; and that sugar was known to the first crusaders, who being short of provisions at Acre and Tripoli, were obliged to chew the cane to support life. In 1420, Don Henry, Regent of Portugal, imported sugar into Madeira from Sicily, whence it found its way by an easy transition to the Canaries, from which islands, before the discovery of America, Europe obtained its supply. From the Canaries the sugar cane passed to the Brazils and the West Indian islands; and towards the middle of the seventeenth century, sugar was imported into England from Barbadoes. From this period, a regular supply has been sent from the West Indies, Mexico, Peru, Spanish America, and the French and Dutch colonies. According to Peter Martyr, who wrote the third book of his first Decade during the second expedition of Columbus, the great discoverer of the western world, in 1493—95, either he himself introduced the cultivation of the sugar plant, or found it among the arts practised by the natives of the then unknown land. Into this question we cannot enter; nor, indeed, does it greatly matter to us as we sweeten our tea or coffee, who was the first man to carry the plant to America—especially as we have no possible means of settling the question.

Of the manufacture of sugar from the cane—of which there are several varieties—in the West Indies, we shall be very brief. When the canes are ripe they are cut down close to the ground, and transported in bundles to the mill house, where they are crushed in machines of a very complicated description. Indeed, on the superiority of the machinery employed depends greatly the profit arising from the cultivation of the sugar cane. The crushed cane is then boiled, and the juice, as it comes from the boiler, is collected, clarified, reboiled, cooled, and finally separated from the syrup, or molasses. In its imported state, West India sugar is of a slight brown colour and granulated appearance, the crystal being of a large, broad character. From the West Indies it is imported in bogsheads; while, from other parts, it reaches England in coarse bags of canvas or grass. The latter, after being cleansed, are frequently sold in the streets as matting for the houses of the poor. Great improvements are constantly being made in the manufacture of raw, or brown sugar, though doubtless much remains to be done ere the estate of the West Indian planter becomes as profitable as could be wished. In 1848 there were imported into the United Kingdom upwards of six million hundredweight of unrefined sugar, fully three-fourths of which came from the British possessions in America.

From this brief sketch of the history of sugar—this hop, skip, and a jump over seven centuries—we come at once to the main purpose of our writing, a description of the method of refining raw sugars. And for this purpose we avail ourselves of the kindness of Messrs. Fairrie and Co., the large sugar refiners of the

Commercial-road, Whitechapel, whose establishment we visited for the purpose of this paper.

Those who would know anything of the great manufacturing processes carried on in London must not be afraid of going somewhat out of their accustomed track, or of penetrating dull, dirty, poor-looking neighbourhoods, or be *very* particular about soiling shoes or clothes; if they *are*, they must be content to take their knowledge at secondhand. And we here forewarn all readers, that one personal inspection of a manufactory will teach them more than the most minute and graphic description can possibly do; especially if they happen to be accompanied by so clever and obliging a cicerone as he who went over Messrs. Fairrie's sugar refinery with us.

We make our way, then, to Whitechapel by omnibus, without even stopping to inquire anything of the peculiarities of the neighbourhood—though we have a dim sort of recollection of the place being described by old Strype—who himself was born in a court in Petticoat-lane, then filled with goodly houses and gardens, instead of Jews' clothes-shops and stalls for the sale of old shoes—as "a spacious, fair street for entrance into the city eastward;" and merely glancing in the direction of the driver's whip as he points out George-yard, a dark, filthy entry, and tells us that "down there is Cadger's-hall, the most infamous cheap lodging house in London, filled with thieves and beggars," we dismount at St. Mary's church, a poor, ugly-looking structure with a square white tower facing the street; and, remembering our directions tolerably well, proceed down Church-lane, and turning sharply round, find ourselves in the Commercial-road. And glad enough we are that we have arrived at our destination; for a dirtier, noisier, or less inviting street than that we have passed through eastward from Aldgate pump we scarcely remember to have seen. In the centre is a hay market, which effectually obstructs the way in spite of its width. On the right hand side from the west is a butcher market facing the street, which stinks like a fever hospital; passing which, the road on either side is lined with dirty shops, dirty people, and foul gutters. It is peculiar that in London, in all quarters of the town with scarcely an exception, the road to wealth is through filth and want. And thus we make our way into the sugar refinery aforementioned, the largest of the kind, in a neighbourhood where "sugar bakers" have for centuries abounded. We pause before a pair of dull-looking gates, and, glancing upwards, take mental note of the extreme height of the building—eight storeys at least—the immense number of windows, which appear calculated for anything but admitting light, and the general dinginess of the whole place. We ring the bell; we present our credentials; we look around; and are presently striving to understand all we see about us.

Most of us know the difference between "moist" or "brown," and "loaf" or "lump" sugar, the latter formerly a sort of luxury even among the middle classes. Well, the brown is the sugar as it comes from abroad, and the loaf or white is after it has left the hands of the refiner. All raw sugars, no matter how well made, contain a certain quantity of impurity—from one to about six per cent.; and to separate the pure crystalizable matter from the molasses, colouring matter, and filth, which the former processes left in the sugar, is the principal object of the sugar refiner, or sugar "baker," as he is vulgarly called.

Having lingered somewhat too long at the gate, we must introduce the reader at once into the premises. Here, then, we stand, with our polite conductor, on the ground floor in what is called

THE RECEIVING ROOM.

It is a busy scene, indeed. At the open door-way, men are receiving great hogsheads of raw sugar from the wagons outside, just fresh from the West India Docks, and no sooner is one hoisted out by the crane and tackle, than it is rolled forward among its fellows, five hundred strong, and another takes its place. At the "blow-up" pans men are shovelling in the sugar from hogsheads lying on their sides, surrounded by steam; while near at hand are others engaged in knocking out the heads of casks, or putting the empty ones away. At the other end of the great room, which is low, partly enveloped in steam, and not over light—for folks soon get used to a particular kind of atmosphere—are the vacuum pans and their attendants; above are pipes passing in various directions for carrying steam, syrup, &c., to their various destinations; below, the ground is covered with a dirty, sticky mass of black molasses—dirty, but not lost or valueless: while all around and about are evidences of wealth, and industry, and energy, in many forms. In the shape of full and empty bags and hogsheads; under the guise of men by scores in various *dis*guises peculiar to their occupation; in the semblance of pans, and pipes, and odd-shaped vessels, the uses of which we have yet to learn; and in the indescribably sweet odour which pervades the whole building—a scent of hot steam, a scent of baked apples, a scent of a grocer's shop, a scent of a confectioner's laboratory—an indescribable scent, as of all the washerwomen's rooms and hardbake warehouses in London rolled into one.

"Well, but this will never do at all," exclaims some impatient reader; "tell us about the process, without any further circumlocution."

"Soft and gently, my most vivacious friend, there is a time for all things," we reply; "and if the Venetians, to whom the world owe so much, had not in the end of the thirteenth century begun by converting into something presentable—sugar candy it was—the black sugars of the Egyptians, to whom the world owe so much more, we should probably never have occupied your attention about sugar-refining at all. So that, you see, you must blame the Venetians for gossips, and not we." However, we take up the hint so politely given, and turn our attention to

THE BLOW-UP PANS

without having the remotest idea of perpetrating a joke. And really the process is not in the least alarming, in spite of its name. The sugar being brought into the receiving-room in a hogshead, the hogshead is tilted on its side, its head having previously been knocked out, and a couple of men are quickly engaged in shovelling its contents into the blow-up pans aforesaid. These are large copper vessels, some five-and-twenty feet round, and five feet high, into which steam is admitted, by means of a coil of pipes, for the purpose of dissolving the sugar. This is the first process; and the sugar, when dissolved, is a by no-means inviting-looking compound, for it is a dark, thick, muddy, clammy liquid, with bits of sticks floating in it, and, as the microscope has lately revealed, thousands of animalcules; pretty stuff, truly, to sweeten pastry with! As yet, the gluten, lime, earth, and molasses, which are always present in raw, or muscovado, sugar, are unremoved, and the substance is simply dissolved, a small portion of lime-water having been admitted to the blow-up cisterns, and constant agitation having been used to assist the operation.

We follow our conductor, who has carefully explained all this to us at length—for we must pursue the process in regular course—and descend a dark flight of stone steps to

THE FILTERING ROOM.

When the saccharine solution, called "liquor" in the language of the factory, has been sufficiently melted, it is allowed to flow from the blow-up cisterns to the filters below, which it enters in a thick, dark, treacly-looking state. The filters consist of a series of cast-iron vessels, about six or eight feet in height, by two and a half in width. The process of filtration is not only very complete, but really highly ingenious. We will endeavour to explain the internal construction of one of these filtering cisterns. It consists of an upright iron square, furnished with an outer door for the arrangement of the interior objects. At the top is a shallow chamber for holding the liquor, and to this is attached a series of metallic tubes, depending from which are several stout canvas bags, about six feet long by two feet wide, doubled and coiled up so as to present a compact mass of cloth. Into these bags the saccharine liquor flows, and there being no lower orifice, is forced through the structure of the material till it exudes in a clear transparent stream, slightly tinged with red. Each filtering cistern holds from forty to sixty bags, and in these are retained all the impurities before spoken of, except a little colouring matter to be removed by the next process.

You may be certain that the bags thus filled in their every pore with impurities soon become clogged up. We will step into the yard outside the receiving room, and see how they are cleansed


SUGAR
REFINING
BLOWING-UP COPPERS.
BRUSHING OUT
FILLING MOULD
CRYSTALLIZING PANS
FILTERING CISTERNS.


HEATING PAN.
DECOLORING - VATS
CENTRIFUGAL - BAG - DRYING - MACHINE
W.G. MASON.
H.PRIOR
CRUSHING - MILL.
CLEANING - BAGS.

On a couple of little platforms stand a couple of men enveloped in canvas and steam, and their faces dappled with mud. Between them, attached to a pipe through which flows the waste steam from the boiler, is one of the dirty bags turned inside out from the filter. A cock is turned on, the bag distends with steam, and the two men scrape off the filth from it like so much mud. When all the dirt that can be scraped off has been scraped off, the bag is detached from the steam pipe and thrown towards another workman, who thoroughly washes it in hot lime-water. The bags are then taken into another room, where they are dried by a patent centrifugal machine. We saw the product of these washings in a cask. It appeared to be pure mud, or dark coloured clay: but we were assured that so far from being valueless, the quantity collected was really worth about three pounds a week to the firm. This mud or clay is bought by the scum boilers, who submit it to a somewhat similar process to that which it has already undergone. The saccharine matter obtained is used principally by the blacking makers, and sometimes by the manufacturers of lollipops and sweet stuff for children; after which the residue is sold for manure, for which purpose it has sometimes brought three pounds a ton! A glance at the engraving will render our description of the above processes somewhat clearer.

The next object to be attained is the decolouration of the clear transparent reddish liquid which we have seen to leave the filters. We again follow our leader through a dark slippery way, and find ourselves in the room where stand

THE DECOLOURING CISTERNS.

Now it must be understood that the object of the sugar refiner is to remove the colouring matter from the "liquor" without either destroying its transparency or injuring its quality. For these purposes there is no agent so good as charcoal, and no charcoal so good as that obtained from the burning of bones. The intimate admixture of carbonate and phosphate of lime with pure carbon thus obtained, is called animal charcoal. To the discovery of the German chemist, Leibnitz, that common wood charcoal possesses the property of removing the colouring matter from many animal and vegetable substances, and to the further discovery, about forty years since, of M. Figuire, that charcoal obtained from calcined bones was of much greater decolourizing power, are owing many improvements in manufactures, not the least of which is the superior method of refining raw sugar. We stand, then, before the cisterns into which has flowed the reddish transparent liquor; one of them happens to be empty, which allows us to examine the manner in which this operation is conducted. At the bottom of the filter is a false floor formed of laths a little distance apart. On this false bottom is laid a cloth which completely covers it; and on this a layer of powdered animal charcoal or "bone black" of three or four feet in thickness. The saccharine liquor from the filters flows into this cistern by means of pipes leading from one to the others; and in a few hours it percolates entirely through the charcoal bed and the layer of cloth; and, escaping through the false floor beneath, is carried off by means of a syphon pipe, a perfectly clear, transparent, and almost colourless liquid; the opaque heavy impurities were removed in the filters by means of the canvas bags, while the colourless matter has been almost entirely got rid of by this further filtration through the bed of animal charcoal. The perfect decolouration which has taken place fits the saccharine liquor for the next process, the boiling, by which the crystallization or solidification is formed.

Of course the charcoal, like the canvas bags, becomes, after two or three operations, entirely filled with impurities. This is soon remedied, for in another part of these extensive premises there are furnaces, iron retorts, &c., for re-burning the charcoal, after which it is good as ever. Indeed, it may be said that—though it wastes, of course, in a slight degree—the power of the carbon is never destroyed, for some of it has been in use here for more than twenty years. Thus, by purifying the charcoal it may be used over and over again, *ad infinitum*. The process here described was first brought into extensive operation by the Messrs. Fairrie, who likewise were the first to discover the property in the charcoal which enabled them to revivify it after it had become clogged with saccharine matter. Into the retort house the stranger is seldom or never shown; and, indeed, he would discover little if he were. We proceed, therefore, again into the Receiving Room where we watch the process of

BOILING IN THE VACUUM PANS.

The object of this process is two-fold. It has already been said, that in all raw sugars there is a certain quantity of uncrystalizable matter and water driven off in the form of steam. We will endeavour to explain. Before us are half a dozen circular, domed, air-tight copper vessels, like that represented in the engraving; each furnished with valves, taps, and pipes for the various purposes of testing the temperature of the liquor, allowing the air drawn off by the air-pump to escape, admitting steam to the boiler, evaporating the steam, &c. &c. In fact, the vacuum boiler may be considered the great heart which sets all the other parts of this factory in motion, and to which all the other processes are subsidiary. Formerly, sugar was boiled in large pans over an open fire, at a temperature of from 240° to 250° Fahr., under ordinary atmospheric pressure. But it was found, notwithstanding the greatest care in boiling, that the sugar was injured by the high temperature employed, and only partial crystalization could be obtained. For every evil there is a remedy, for every demand a supply, and for every time a man. And so it was found in this instance. The scion of a noble house, some forty years ago, conceived the happy idea of boiling sugar in vacuo; that is, by removing the pressure of the atmosphere by means of an air pump, the operation of boiling—which is only rapid evaporation—could be carried on at a very low temperature. At first, of course, as with most improvements in manufactures and the arts, there were great difficulties to be overcome; the experiments on which the plan was based had been carried on with an insufficient apparatus, and the production of small, weak, soft crystals was the only result. At last an accident was the means of clearing away all doubts as to the practical operation of the new plan. It is said that a sugar refiner in Goodman's-fields had so nearly ruined himself in his efforts to carry out Mr. Howard's views, that his son, a cleverer man than his father in many respects, withdrew from the business, and that the friends of the enthusiast were really thinking of issuing a commission of *inquirendo de lunatico* to prevent his wasting his substance. One day, however, while the gentleman in question was poudering the matter in his counting-house, one of his workmen, a German, rushed in with the exclamation, "I've found it out, Sir; I've found it out." And so he had; for, while tending one of these vacuum pans, the liquor inside happened to get too hot; to remedy which he let in a a quantity of cooler sugar, and on withdrawing a portion to examine its effect on the mass, to his astonishment he discovered that large bright crystals of sugar had formed in the pan. Another trial, and he was certain the real secret had been solved. And so it proved; and he who had been deemed a madman by his friends, and was almost ruined by his perseverance, lived to see his ideas prosper, and to become a rich man; and ever since then the plan of boiling sugar in vacuo has been universally adopted by the refiners. Indeed, they deserve all the profit and credit attending their perseverance, for in some years they collectively paid upwards of forty thousand pounds in premiums for the use of Mr. Howard's patent process.

This process, after having stood gossipping so long before the pans, we must now describe. The sugar is boiled, but where are the fires? In a distant part of the building. Whatever processes require heat, that heat is supplied by steam brought hither and thither in pipes, and carried away when it has boiled and filtered, to wash dirty bags, as we have seen; to heat stoving rooms, as we shall see; and to perform various other minor offices ere it mixes with the outer air and is lost for ever.

The plan then is this: the saccharine liquor after percolating through the charcoal, and being afterwards collected in a cistern as a colourless transparent liquid, is brought through an ascending pipe into the pans themselves. From the pans the air has been withdrawn by an air-pump; and the liquid sugar rushes up the pipe to supply its place, as in a common pump. "Nature abhors a vacuum"—but you know the adage. Steam is then

admitted to the space below the sugar in the pan, and also through a number of pipes to the interior; and thus the sugar, by means of the nearly perfect vacuum created in the pan, is brought to a boiling state while at a temperature but little higher than that of a warm bath. To assist the more perfect evaporation of the sugar it is made to flow through a large iron pipe partially filled with tubes, by which means the steam is condensed and the vacuum maintained. As it evaporates, the crystals of sugar are already forming in the pan. To test the state of the granulated sugar, there are attached to each pan a thermometer, a glass test-pipe showing the height of steam inside, an index, and a tap by which the progress of the liquor in the evaporating pipe may be discovered. But the most important instrument of all is the ingenious little brass stick, called the proof rod, which may be regarded as a kind of key which unlocks a valve in the body of the pan, and, after withdrawing a portion of the crystalized sugar, locks the valve again without disturbing the vacuum inside. To test the quality of the sugar, the "boiler," as the workman employed at the pans is called, takes a sample with the proof rod, in the way described; and discovers the degree of tenacity and granulation by taking a little between his finger and thumb. By these means, apparently so simple, but really requiring a vast deal of experience and natural tact, the sufficiency or insufficiency of the boiling is at once discovered. It is then either subjected to further boiling, or is at once let down through a valve in the pan, to the

SUGAR HEATERS

below—whither we will follow it, though by a rather different road. These "heaters," into which the sugar flows from the vacuum pans, were formerly called "coolers," and for this reason: *then* the "liquor" was boiled at a very high temperature, and the granulation took place only when the liquid was brought to a lower; *now* the crystalization takes place within the boiler itself, and, for the purpose of giving the mass greater consistency, it is raised in these "heaters" to a temperature of about 180°, while it was boiled at 130° or 135°. The sugar is kept continually stirred, to drive off, in the form of vapour, the superfluous water with which it is combined, and to give the future loaf a finer and firmer texture; this stirring is called in the language of the workmen "hauling" and "mixing." This, though a busy scene, is one which is easily comprehended. It is a fitter one, however, for the pencil to delineate than the pen to describe. The liquor is now ready for the moulds; we, therefore, enter an apartment on the same floor, and at but little distance from the "heaters," called

THE FILLING ROOM.

Here an entirely new scene meets our view. About three-fourths of a very large, square, stone-paved room is covered with conical iron moulds, about two feet in length, and six inches in diameter at their large ends; the greater portion of which are standing close together, each one on its apex and supported by its neighbour, with here and there, in front, a mould standing on its base gives the necessary support to the whole. Before we have taken in the scene, we have to stand aside to let a labourer pass, who bears before him a large copper basin filled to the brim with the hot saccharine liquor. Others succeed him, some stripped to the waist, some clothed in trowsers and a sort of flannel or loose Guernsey shirt. We watch their proceedings. From the copper coal-scoop-looking machine they fill the various moulds ranged in hundreds along the floor, without spilling a single drop. It being important to fill all the moulds at about the same temperature, it is arranged that a sufficient number of men shall be employed to "fill out" the contents of one sugar boiling in about half-an-hour. While some of the workmen are thus engaged at a sort of half run in passing from the heaters to the moulds and filling out, others are occupied with little iron instruments, shaped something like solid triangles set horizontally on handles, in stirring and scraping round the edges of the moulds to prevent any adhesion, and to diffuse the small crystals still forming equally through the liquid mass of sugar. A most surprising thing it is to see how the workmen contrive to carry the scoops of hot "liquor" from the heater, and fill up the moulds, without ever scalding themselves or spilling the contents. But experience in this, as in all other mechanical operations, is the great teacher.

The sugar loaves yet contain a certain portion of molasses. By various processes they have undergone, they have been deprived of their solid impurities, a portion of their water, and the greater part of their colouring matter. To get rid of this last is the object of the next process; so, after standing in the "filling room" for about a couple of days, the moulds are carried upwards, from floor to floor, through the "pull-up hole"—a term which will be readily understood when it is stated that a sort of shaft proceeds from the basement to the highest storey, through which the loaves are lifted during the various stages of their completion.

Let us see how this molasses or syrup is finally made to quit the refined sugar. The moulds, which give to the refined mass the well-known sugar-loaf shape, are of various sizes, but the mode of manipulation is the same with each. In the language of the refinery, *loaves* are the best, and *lumps* the commoner description of sugar. The smallest moulds contain as little as ten pounds, and the largest not less than two hundred and fifty. We will suppose that a sufficient degree of solidification has taken place; the next process, then, is

THE WASHING, OR NETTING,

which takes place in an upper room. We proceed by a spiral stone staircase, which traverses the whole building—or rather buildings, for we should have stated long ago that this factory consists of two houses united by a covered bridge—and find ourselves in a large floor, covered all over with moulds, placed each one of them in an earthen jar. Here the "washing" takes place. The small opening at the apex of each conical mould is uncovered, and the loaf allowed to drain. But the draining does not entirely remove the syrup from the sugar, a small portion still remaining among the crystals and the coating of the loaf. To get rid entirely of that part of the syrup which is still left in the sugar, the loaves are "washed" in rather a peculiar way. Till latterly, the washing was performed by means of a stratum of fine white clay and water, which being placed on the surface of the base of the loaf, was allowed to percolate through it, and carry the colouring matter with it. At present, however, the porous surface, or sponge, is made of sugar itself, instead of clay. The rough portion of the sugar being scraped off the base of other loaves, it is mixed with water, and applied in the way the clay used to be. This "magma" or mortar percolates through the sugar, and escapes through the hole in the apex of the mould, in the shape of a fine transparent syrup of a light brown colour. When this "magma" becomes dry a solution of fine clear sugar is poured; and thus is this process repeated till the loaf has lost all trace of molasses and colouring matter, and rivals snow itself in whiteness and points of sparkling light. From room to room is this process repeated, according to the different qualities of sugar required. The syrup in which there still remains a certain portion of crystalizable matter, is treated in the same way as raw sugar, till at last nothing remains but the liquid so well known to most of us, when children, as treacle, vast quantities of which are used by the cheap confectioners and the makers of what is called sweetstuff.

Nothing now remains, therefore, but to prepare the loaves for sale, which last process is known in the factory as

BRUSHING OFF;

a term certainly not very applicable, seeing that no brush is used at all. When the "washing" or "netting"—making the sugar net, neat, or pure—is completed, the face of the loaf is made smooth by means of a scraper or sharp knife. After having remained some days in the mould, the loaf is finally released by a smart blow against a post standing up on the floor. But in spite of the most careful "washing," the point of the sugar-loaf still remains in a somewhat soft and discoloured condition, to remove which it is carried to a machine, in which a couple of cutting knives revolve by the aid of a wheel, turned either by hand or steam. The apex of the loaf being introduced to these, is speedily shaved or trimmed into the form usually seen, an operation known in the factory as "turning off."

(*Concluded on page* 174.)

PRACTICAL CHARITY.

Our engraving shows us a lady in the upper ranks of life ministering to the wants of a destitute family in a wretched garret. The furniture, and the general appearance of the room and its inmates, tell their own tale; and the husband's arm in a sling reveals the cause of all the misery. The look of painful surprise on the lady's face speaks well for her, better even than the good things with which her footman is laden. So far all is well. The tale is well adorned; it remains to point the moral. But doubtless to many of our readers it may suggest materials for a long train of reflections upon the most momentous and most painful topic of the day,—the position and prospects of "the dangerous classes." This expressive phrase, which is now universally used to designate the great mass of the poor, originated in France, and has been borrowed into our language, not less for its force and terseness, than for its singular appropriateness to a part of the framework of English society also. The fact is that the great majority of the poor and working classes are literally *dangerous* to all those whom birth, or riches, or education, or official standing, has placed above them in the scale. Ever since the peace of 1815, when men, after an interval of thirty years of war, had time to turn to projects of domestic reform, the great danger and crying sin of allowing the poor to remain uncared for and unthought of has been constantly before the public in one shape or other. Philanthropists spoke, and wrote, and toiled in vain, till great novelists and poets began to write *up* the labouring classes. Then came the reaction. Domiciliary visits for charitable purposes were the rage. To be unwashed, unshaven, and wretched, gave a man an unquestionable title to be considered "interesting." Fine ladies were no longer reluctant to enter the abodes of misery. Poverty, to a certain extent, lost its *lowness* and *vulgarity*. In short, charity had become fashionable. Then there were baths and lodging-houses constructed, and all sorts of plans and projects proposed and discussed, and put into execution, by royal dukes and noble lords, as they became mellowed with wine over philanthropic dinners.

Nor is there anything in all this to be denounced. As far as this fashionable fever affects the poor, it must be confessed that it is the most beneficial of the follies to which the *beau monde* so often abandons itself. But without pretending to possess any insight into men's motives, it cannot be denied that a great part of those efforts, however praiseworthy in their object, are sadly wanting in regard to the manner in which they are made. What is needful to remove or diminish the mountain of crime and misery which surrounds us is not occasional good deeds done because "everybody" is doing the same, but years of unwearied usefulness. Lavish profusion in almsgiving as surely degrades its objects as it relieves their present necessities. There are few of the curses pronounced upon humanity the effects of which are not narrowed or counterbalanced, strange as it may seem, by attendant blessings. Labour, disguise it or glorify it how we may, is an evil of which we would everyone of us gladly rid ourselves were it not accompanied by independence of character and integrity of heart and purpose. But deprive a man of the spur to exertion, and you deprive him of his manliness. Make him the recipient of support which has cost him no thought and required from him no exertion, and you blunt the edge of native honour and dry up the fountains of intellectual vigour and refined sentiment. It is the fire and the hammering, the varied successions of fierce heat and piercing cold, which gives the steel its temper. The iron unwrought, untouched, untried, is soft and worthless. They who would be truly charitable, must be patient and indefatigable. It will not do to give large subscriptions to be puffed in the papers and trumpeted in reports. Our almsgiving must be in secret, and our Father, who seeth in secret, will reward us openly. The haunts of wretchedness must be sought out; the truth of stories tested by personal inspection; real, undeserved distress, by all means relieved with delicacy and tenderness, without assumptions of haughty superiority or degrading comments upon the accidents of low birth, or the humiliation of misfortunes sent by God. Everything should be done to keep alive and nurse the keen sense of self-respect, which is found in



DESIGNED BY KARL GIRARDET.

all men in a greater or less degree—in short, to relieve distress without degrading the recipient of our donations. These things are too often done by fits, and starts, and impulses, and are thus only half done. The work of good is too often undertaken with vigour, cast aside upon the first attack of aristocratic langour and ennui, and soon forgotten. But people of good and easy natures are apt also to be imposed upon by artful and designing knaves; their very indolence prompts them to reject inquiry; and incalculable injury is done by teaching the lesson that the rich are fair game for imposition, and a pleasant livelihood may be obtained apart from honest labour. The greatest curse of the poor is indiscriminate charity, or almsgiving. Gentlemen and ladies find themselves often deceived, turn sour, pronounce all paupers rogues, and button up their pockets. But they are themselves to blame. Let them not give money, or food, or clothes, to any who are able to work; let them give freely to those who are not. In organizing all schemes for benevolent purposes, let them beware of doing too much, of trenching upon individual independence and self-reliance, of taking out of the hands of the poor or labouring classes anything that they themselves can achieve. Let them be originators, projectors, encouragers, but not mischievous meddlers; and above all let them be sceptical. Let them act as the lady in our engraving—see before they believe.

BENJAMIN WEST AND HIS FAMILY.



FROM A PAINTING BY HIMSELF.

In 1738, but a small tract of the eastern coast of North America had been colonised by English settlers. New York, Philadelphia, and most of the other great towns of the union, were but small, poor, quiet places, in which the descendants of puritan fathers stood behind their counters with grave faces, living godly and frugal lives, happy in their removal from the broils of the old world, and in the possession of religious liberty. Their public affairs were managed as their private, with the austere gravity, the absence of all dexterous policy or statecraft, which became their religious creed. Worldly pomp or show or glitter, the refinements of art or luxury, and the whims of fashion, were alike eschewed amongst them as devices emanating from the archfiend himself for the demoralization of mankind. The order of the time and place was plainness and simplicity in all things—in speech, in dress, in furniture, and even in education. Strange to say, from amongst the strictest of these strict sects, the quakers of Pennsylvania, arose one of the greatest painters of modern times. Benjamin West was born in the town of Springfield in 1738. Some of his ancestors (so ran the family tradition) had won high renown in the old wars of France and England, and a great preacher of the Society of Friends prophesied that the young infant would one day be as famous as they by his fervent advocacy of the doctrines of peace. The prophecy was in part true—true to his future success, but mistaken as to his vocation in life. His parents, however, were delighted by the expectations formed by their neighbours of their son, and, though uncertain in what particular department his talents lay, were content to wait with patience until time and Providence should develop them. As might naturally be expected, there was nothing very remarkable about the child for the first four or five years of his life. When he was in his seventh year, his mother left him alone one evening during the summer, and, putting a fan into his hand, gave him directions to drive away the flies from annoying a baby which slept in a cradle. While performing this duty, his attention was attracted by the calm and peaceful aspect of the infant, and the smile of innocence which played upon its lips. The love of art was beginning to live within him, and, in obedience to the first of its impulses, he attempted, with no other implements than black and red ink and a pen, to fix on paper the likeness of his little sister. While thus engaged, his mother came in, and overlooked him without being observed. In the first moments of confusion he attempted to conceal the paper, but on giving it up

she was surprised and delighted by the truth and accuracy of the sketch. It must be remembered that at this time little Benjamin had never seen a picture.

But even this did not lead his friends to suspect that he would ever adopt painting as his calling; but it had one good effect—it gained for him the approbation and encouragement of his mother. As he grew old, the neighbours wondered at his enthusiastic admiration of nature. In summer he wandered through the fields collecting the wild flowers, and in autumn, the American "fall," he often staid out for whole days gazing in silent rapture at the rainbow tints of the foliage in the woods. But a fine sunset, the purple and golden clouds which drape the king of day as he sinks to rest, furnished him with a continually recurring source of delight. In the meantime, the sketching of men, and trees, and farm animals, with chalk on the doors or the floor improved his powers of observation, and increased his manual dexterity. The Mohawk Indians, whose territory was in the neighbourhood, paid frequent visits to Springfield. The amity which from the first settlement of the state had subsisted between them and the colonists led to frequent interchange of kind offices. The savages became very fond of little Ben; and observing his love for drawing, they gave him some of the red and yellow paint with which they were in the habit of daubing their own faces. His mother made him a present of a piece of indigo: and having thus three colours, red, yellow, and blue, from a mixture of the blue and yellow he manufactured green. Nothing was now wanting but a brush. Necessity is the mother of invention. He seized the cat, and by a copious extraction of hair from her back furnished himself with the required instrument. He now set to work in right earnest. The parlour was speedily adorned with pictures of Indian chiefs, birds from the forest with gorgeous plumage, and wild flowers from the fields. All these efforts evinced wonderful faithfulness to nature. Nothing of the kind had ever been seen in the house of a Pennsylvanian farmer before.

About this time a merchant of Philadelphia, named Pennington, a Friend, and a man of high attainments and enlarged views, came down to see Benjamin's father, who was his old and intimate friend. He looked at the paintings with astonishment; and upon being told who had executed them, and how he had done it, he patted the little artist on the shoulder, and said, "Verily, the boy hath a wonderful faculty. Some of our friends might look upon these matters as vanity, but little Benjamin appears to have been born a painter; and Providence is wiser than we." His mother now remembered the old quaker's prophecy, but she could not imagine how her son was to become great or useful merely by making pictures. Immediately after Mr. Pennington's return to Philadelphia, he sent down a box of paints, several brushes, canvas, and a number of beautiful engravings and landscapes. For some time after their arrival Benjamin was busily employed in the garret, rising early, eating quickly, and going late to bed. For several days his mother did not interfere with him, but at last she could restrain her curiosity no longer, and going up, found to her delight and astonishment that he had copied parts of two of the engravings sent him by Mr. Pennington, so as to make one painting of both, having every object in its natural colours, and the *toute ensemble* was such that many an older artist need not have been ashamed of it.

When verging on manhood he was sent to school in Philadelphia, and while there was attacked by fever. While confined to his bed, the shutters were closed to exclude the light, but a few rays nevertheless found their way in through a chink. As he lay awake in bed, he was surprised to see the figures of cows, pigs, and other objects passing in the street, reflected upon the ceiling of the room. Upon examination he discovered the scientific principle upon which the phenomenon rested, and then by means of it constructed a camera obscura, or magic lantern, which was afterwards of great use to him in drawing landscapes. He continued to paint until he had reached the age of manhood, and it was time for him to choose his calling in life. His parents were now in great perplexity. They knew that many of their sect considered painting a vain and profitless occupation. So ivide their responsibility they assembled all the preachers and ablest men of their society in the meeting-house, and laid the question before them. After a long discussion, all came to the conclusion that God had given Benjamin specific talents, which would be thrown away upon any other trade or profession—they acknowledged that even pictures may do good in their way, and resolved not to oppose his inclination. The old men, therefore, laid their hands on his head, blessed him, and sent him on his way rejoicing. His progress was now rapid. He became everywhere famous; and on his going over to Europe, his society was courted by the great and powerful. But wherever he went he retained his quaker simplicity, keeping on his hat in the presence of crowned monarchs. When he was twenty-five years old, he established himself in London, and in process of time became painter to George III., and President of the Royal Academy. The king employed him upon a series of paintings illustrative of the life and miracles of Christ for the decoration of St. George's Chapel at Windsor. One of his pictures, "Christ Healing the Sick," was exhibited at the Royal Academy. It contained a number of figures as large as life, and attracted immense crowds. By its side hung a small and faded landscape—the one he had painted in his father's garret years before, and when good Mr. Pennington had sent him the materials. "Christ Healing the Sick" he presented to the hospital at Philadelphia, and the sum raised by its exhibition to the public was so great, that they were enabled to enlarge the building and receive thirty additional patients. His "Death of Wolf" is too well known to need more than a mere mention.

The engraving at the head of our article is from a painting by himself. The calm happiness, the resigned but dignified and even amiable serenity of port and features which we may suppose to have pervaded a quaker family of the olden time, are here depicted to the life. He died in 1820, having reached the ripe age of eighty-two, after one of the happiest, most successful, and most useful lives to be found in the annals of great men.

A VISIT TO A SUGAR REFINERY.—(*Concluded from page* 171.)

In the inferior kinds of refined sugar, the softened end is simply chipped off, which leaves the loaf in the shape of a truncated cone. The piece chipped off is either used as "magma," or is sold by the grocers under the name of "crushed crystalized West Indian sugar;" it has a light brown colour, and is scarcely inferior to the remainder of the loaf, except that it contains a small portion of molasses.

We had almost forgotten to say, that before the sugar is finally ready for sale it is papered up, and thoroughly dried in a stoving room, which is heated to a very high temperature by means of a series of iron pipes, through which the waste steam from the boiler is made to pass.

We have now ended our visit, and we may merely say, in conclusion, that whatever improvements have been made in the machinery employed in the refining process, the public have been the immediate recipients of the benefits accruing; for whatever the price of unrefined or brown sugar, it is found that the cost of the lump, loaf, or refined sugar has seldom exceeded it by more than twenty per cent.; whereas in former times forty or fifty per cent. was nearer the mark.

About a third of the workmen employed in a sugar refinery are Germans, and about a third of the remainder are Irishmen. The heat in factories of this description was formerly excessive; but such is the force of habit, that many men work without a shirt in a room the temperature of which would almost admit of their donning a great coat! It will have been seen that the trade is not of the cleanest; but at any rate the product of the vacuum pans may be considered as free, or perhaps freer from adulteration than any article consumed by the public.

In the following brief account of the patents granted during

the last forty years for improvement in the process of refining muscovado sugars, the reader may possibly find a grain of interest.

In 1812, Charles Edward Howard, Esq., of Westbourne-green, in the county of Middlesex, obtained his first patent for boiling sugars in vacuo as above described; and in 1813 he had granted him another patent for improvements in the same process.

In May, 1815, a patent was granted to Peter Martineau, Esq., of Canonbury-house, Islington, for improvements in the method of clarifying raw sugars. In the place of the bullocks' blood and liver previously employed, he introduced the use of animal charcoal, bituminous earths, ochres, and vegetable charcoal, the animal charcoal forming the principal feature of his invention.

In June, 1815, Mr. John Taylor, of Stratford, Essex, obtained a patent for a new method of filtering sugars through strong linen cloths by means of great pressure, a plan no longer adopted.

In 1825, Mr. Jennings obtained a patent for refining sugar by means of a new agent, alcohol, a method which was abandoned in consequence of its extreme danger.

In May, 1847, James Johnson, of Willow-park, Greenock, had a patent granted him, the principal feature of which was the neutralization of the acids of the molasses by the removal of the syrup formed during the process of potting or moulding. One part of his specification, which proposed to make the sugar loaves hexagonal in shape for the convenience of packing, is worthy the consideration of manufacturers.

In 1847, Dr. Schoffern obtained a patent for the improvements in the process of refining sugars, the principal point insisted on being the employment of sulphurous acid for the separation of lead from saccharine solutions, so that the basic acetate of lead, the purifying qualities of which are well known, might be used by sugar refiners. The process is not now adopted, we believe, by any manufacturers, on account of the difficulty of entirely removing the lead from the sugar.

In 1848, Mr. George Michels, of the United States, obtained a patent in his native country for the manufacture of sugar, in which the chief features were the cutting of the cane in thin slices transversely through their saccharine cells, and the use of oxalate of alumina as the chemical agent.

And, lastly, Messrs. Ocland, of Plymouth, have patented a plan for the better defecation and decolouration of the saccharine liquor.

With these explanations, we trust that our friends and readers will take their cup of tea in peace.

THE LADIES' DEPARTMENT.

BRIDAL PURSE IN CROCHET.

MATERIALS.—Six skeins of white crochet silk, two skeins of *ombré* scarlet ditto, in long shades, three skeins of slate-colour, and one of bright scarlet. Two oz. of transparent white beads, rather larger than seed beads, four strings of gold, the same size, and a hank of steel to match. For the garnitures (which must be entirely of bright steel), two rings, a handsome tassel for one end and a deep fringe for the other. Boulton's tapered indented crochet-hook, No. 23.

Begin by threading all the white beads on the white silk; half the gold on the ombré cerise, and the steel on the slate-coloured. What scarlet silk is used in the square end is without beads; the few rows at the other end, of that colour, are threaded with gold, which may be put on afterwards.

The design of the square end consists of a spray of roses and leaves, the former in scarlet ombré with gold beads intermixed, the latter with slate-silk and steel. The ground is composed wholly of white beads, one being dropped on *every* stitch; where, therefore, the scarlet and slate silks are worked without beads, they appear to be *in intaglio*. A scroll of steel beads below the group is intermixed with the white, and the top and bottom of the square end are finished off with vandykes of plain scarlet without beads. At the bottom is an open pattern in scarlet, to which is attached the fringe.

Begin with the plain scarlet silk, with which make a chain of 100 stitches, and close it into a round. Work one round in scarlet, using in the end of white silk.

2nd round: In which you begin to drop on the white beads. × 2 white, 3 scarlet, × 20 times.

3rd: × 3 white, 1 scarlet, 1 white, × 20 times.

4th: All white; work in the scarlet silk all round, and then fasten it off, as no more is required until the whole square end is worked.

5th: × 22 white, 1 steel, 23 white, 1 steel, 3 white, × twice.

6th: × 21 white, 2 steel, 22 white, 2 steel, 3 white, × twice.

7th: × 3 white, 1 steel, 5 white, 2 steel, 3 white, 2 steel, 4 white, 3 steel, 2 white, 1 steel, 6 white, 2 steel, 4 white, 2 steel, 3 white, 3 steel, 4 white, × twice.

8th: × 3 white, 2 steel, 3 white, 3 steel, * 2 white, 4 steel, * twice; 2 white, 2 steel, 4 white, 3 steel, 3 white, 3 steel, 2 white, 4 steel, 4 white, × twice.

9th: × 2 white, 3 steel, * 2 white, 4 steel, * 3 times; 1 white, 3 steel, 3 white, 4 steel, † 2 white, 4 steel, † twice, 4 white, × twice.

10th: × 2 white, 2 steel, * 3 white, 3 steel, * 3 times; 2 white, 2 steel, 4 white, 3 steel, † 3 white, 3 steel, † twice; 5 white, × twice.

11th: × 1 white, 1 steel, 2 white, 4 steel, 4 white, 3 steel, 3 white, 2 steel, 3 white, 1 steel, 3 white, 4 steel, 4 white, 3 steel, 3 white, 2 steel, 3 white, 1 steel, 3 white, × twice.

12th: × 4 steel, 2 white, 1 steel, 1 white, 5 steel, 3 white, 3 steel, 4 white, 4 steel, 2 white, 1 steel, 1 white, 5 steel, 3 white, 3 steel, 4 white, 1 steel, 3 white, × twice.

13th: × 3 white, 2 steel, 2 white, 1 steel, 4 white, 5 steel, 4 white, 2 steel, 3 white, 2 steel, 2 white, 1 steel, 4 white, 5 steel, 4 white, 2 steel, 4 white, × twice.

14th: 3 white, 2 steel, 2 white, 3 steel, 4 white, 4 steel, 8 white, 2 steel, 2 white, 3 steel, 4 white, 4 steel, 9 white, × twice.

15th: × 4 white, 1 steel, * 3 white, 4 steel, * twice, 8 white, 1 steel, † 3 white, 4 steel, † twice, 8 white, × twice.

16th: × 9 white, 4 steel, 4 white, 2 steel, 13 white, 4 steel, 4 white, 2 steel, 8 white, × twice.

17th: All white.

18th: × 14 white, 2 slate silk, 34 white, × twice.

19th: × 14 white, 3 slate, 8 white, 5 steel, 20 white, × twice.

20th: × 14 white, 5 slate, 4 white, 9 steel, 12 white, 2 steel, 4 white, × twice.

21st: × 14 white, 11 slate, 1 steel, 3 slate, 2 steel, 10 white, 2 steel, 1 white, 2 steel, 4 white, × twice.

22nd: Begin the ombré scarlet, × 16 white, 7 slate, 2 steel, 12 white, 2 gold, 2 white, 2 steel, 4 white, 2 steel, 1 white, × twice.

23rd: × 13 white, 11 steel, 12 white, 1 gold, 2 scarlet silk, 1 gold, 7 white, 2 steel, 1 white, × twice.

24th: × 14 white, 9 steel, 3 white, 2 steel, 7 white, 1 gold, 3 scarlet, 6 gold, 5 white, × twice.

25th: × 10 white, 1 gold, 5 white, 7 steel, 2 white, 4 steel, 6 white, 1 gold, 3 scarlet, 1 gold, 5 scarlet, 1 gold, 1 white, 2 steel, 1 white, × twice.

26th: × 7 white, 2 gold, 2 scarlet, 4 gold, 5 white, 2 steel, 3 white, 4 steel, 2 slate silk, 4 white, 1 gold, 2 scarlet, 1 gold, 6 scarlet, 1 gold, 1 white, 2 steel, 1 white, × twice.

27th: × 9 white, 1 gold, 2 scarlet, 1 gold, 2 scarlet, 1 gold, 4 white, 1 steel, 1 slate silk, 3 white, 4 steel, 4 slate, 2 white, 1 gold, 2 scarlet, 1 gold, 3 scarlet, 1 gold, 2 scarlet, 1 gold, 4 white, × twice.

28th: × 11 white, 3 gold, 1 scarlet, 1 gold, 4 white, 1 steel, 1 slate, 3 white, 3 steel, 5 slate, 2 white, 1 gold, 2 scarlet, 1 gold, 3 scarlet, 1 gold, 2 scarlet, 3 gold, 2 white, × twice.

29th: × 8 white, 3 gold, 2 scarlet, 1 gold, 1 scarlet, 1 gold, 4 white, 1 steel, 1 slate, 3 white, 3 steel, 5 slate, 2 white, 1 gold, 1 scarlet, 2 gold, 1 scarlet, 2 gold, 3 scarlet, 1 gold, 2 scarlet, 1 gold, 1 white, × twice.

30th: × 8 white, 1 gold, 1 scarlet, 1 gold, 3 scarlet, 2 gold, 3 white, 2 steel, 1 slate, 3 white, 3 steel, 5 slate, 3 white, 3 gold, 3 scarlet, 1 gold, 4 scarlet, 1 gold, 2 white, × twice.

31st: × 8 white, 1 gold, 1 scarlet, 1 gold, 3 scarlet, 2 gold, 3 white, 1 steel, 2 slate, 4 white, 2 steel, 5 slate, 4 white, 7 gold, 3 scarlet, 1 gold, 2 white, × twice.

32nd: × 8 white, 1 gold, 2 scarlet, 4 gold, 3 white, 1 steel, 2 white, 1 steel, 4 white, 2 steel, 5 slate, 5 white, 4 gold, 5 scarlet, 1 gold, 2 white, × twice.

33rd: × 9 white, 5 gold, 1 white, 3 steel, 3 white, 1 slate, 1 steel, 3 white, 1 steel, 5 slate, 5 white, 1 steel, 2 white, 1 gold, 5 scarlet, 1 gold, 3 white, × twice.

34th: × 20 white, 1 slate, 1 white, 1 steel, 2 white, 2 steel, 5 slate, 4 white, 1 steel, 4 white, 5 gold, 4 white, × twice.

35th: × 19 white, 3 slate, 2 white, 2 steel, 4 slate, 5 white, 1 steel, 14 white, × twice.

36th: × 14 white, 1 slate, 3 white, 3 slate, 1 steel, 3 white, 4 steel, 7 slate, 2 steel, 12 white, × twice.

37th: × 14 white, 7 slate, 1 steel, 3 white, 2 steel, 2 white, 9 slate, 2 steel, 10 white, × twice.

38th: × 14 white, 6 slate, 2 steel, 3 white, 2 steel, 1 slate, 1 steel, 5 white, 5 slate, 2 steel, 9 white, × twice.

39th: × 10 white, 2 steel, 1 white, 2 steel, 4 slate, 2 steel, 4 white, 6 steel, 5 white, 4 slate, 3 steel, 8 white, × twice.

40th: × 10 white, 2 steel, 2 white, 6 steel, 5 white, 1 steel, 3 slate, 2 steel, 5 white, 4 slate, 3 steel, 6 white, 1 steel, × twice.

41st: × 1 steel, 6 white, 2 steel, 16 white, 1 steel, 3 slate, 3 steel, 4 white, 5 slate, 3 steel, 4 white, 1 steel, 1 slate, × twice.

42nd: × 1 steel, 7 white, 1 steel, 1 white, 2 steel, 1 white, 5 gold, 7 white, 1 steel, 4 slate, 2 steel, 5 white, 3 slate, 1 white, 3 steel, 3 white, 2 steel, 1 white, × twice.

43rd: × 10 white, 2 steel, 1 white, 1 gold, 4 scarlet, 1 gold, 6 white, 1 steel, 4 slate, 3 steel, 5 white, 2 slate, 2 white, 2 steel, 5 white, 1 steel, × twice.

44th: × 12 white, 3 gold, 3 scarlet, 2 gold, 4 white, 1 steel, 1 white, 4 slate, 3 steel, 5 white, 2 slate, 3 white, 1 steel, 1 white, 2 steel, 2 white, 1 steel, × twice.

45th: × 7 white, 2 steel, 2 white, 1 gold, 3 scarlet, 2 gold, 2 scarlet, 1 gold, 4 white, 1 steel, 1 white, 5 slate, 2 steel, 5 white, 2 slate, 4 white, 1 steel, 2 white, 1 steel, 1 white, 1 steel, × twice.

46th: × 7 white, 2 steel, 1 white, 1 gold, 6 scarlet, 1 gold, 1 scarlet, 1 gold, 3 white, 2 steel, 1 white, 5 slate, 2 steel, 4 white, 2 slate, 3 white, 1 slate, 1 white, 1 steel, 2 white, 1 steel, 1 white, 1 steel, × twice.

47th: × 10 white, 1 gold, 7 scarlet, 2 gold, 3 white, 1 steel, 2 white, 5 slate, 2 steel, 1 slate, 8 white, 2 slate, * 2 slate, 1 white, * twice, × twice.

48th: × 10 white, 1 gold, 3 scarlet, 2 gold, 2 scarlet, 2 gold, 2 white, 1 steel, 3 white, 5 slate, 2 steel, 2 slate, 7 white, 2 slate, 1 white, 3 slate, 2 white, × twice.

49th: × 9 white, 3 gold, 4 scarlet, 6 gold, 4 white, 4 slate, 3 steel, 3 slate, 5 white, 3 slate, 3 white, 1 steel, 2 white, × twice.

50th: × 9 white, 1 gold, 2 scarlet, 1 gold, 4 scarlet, 2 gold, 6 white, 4 slate, 1 white, 4 steel, 3 slate, 3 white, 4 slate, 3 white, 1 steel, 2 white, × twice.

51st: × 9 white, 1 gold, 3 scarlet, 5 gold, 6 white, 4 slate, 1 steel, * 1 white, 2 steel, * twice, 9 slate, 2 white, 1 steel, 3 white, × twice.

52nd: × 10 white, 1 gold, 5 scarlet, 2 gold, 5 white, 4 slate, 1 white, 1 steel, 1 white, 1 steel, 2 white, 3 steel, 7 slate, 3 steel, 4 white, × twice.

53rd: × 11 white, 6 gold, 5 white, 3 steel, 3 white, 1 steel, 5 white, 6 steel, 10 white, × twice.

54th: × 22 white, 1 steel, 2 white, * 1 steel, 1 white, * twice, 1 steel, 5 white, 9 steel, 6 white, × twice.

55th: × 23 white, 4 steel, 2 white, 1 steel, 2 white, 2 steel, 2 white, 7 steel, 7 white, × twice.

56th: × 19 white, 2 steel, 4 white, 1 steel, 4 white, 2 steel, 2 white, 1 steel, 3 white, 4 steel, 8 white, × twice.

57th: × 18 white, 1 steel, 2 white, 4 steel, 25 white, × twice.

58th: All white, work round to the centre of one side; also

59th: (Begin again with the plain scarlet), × 1 scarlet, 4 white, × 20 times.

60th: × 2 scarlet, 2 white, 1 scarlet, × 20 times.

61st: All scarlet; fasten off scarlet.

62nd: With the white silk, 3 chain, dropping a bead on every chain, miss 3, s.c. on both sides of the fourth; repeat all round.

Now, instead of working round, work backwards and forwards, *dropping a bead on every chain* stitch, so that they may all come on the right side of the purse.

1st row: 5 c.h., turn, s.c. in same stitch, × 5 c.h., miss 3, s.c. on s.c., × all along the row.

2nd row: 6 c.h., turn, s.c. on centre of 5 c.h., × 5 c.h., s.c. on centre of next loop of 5, × to the end.



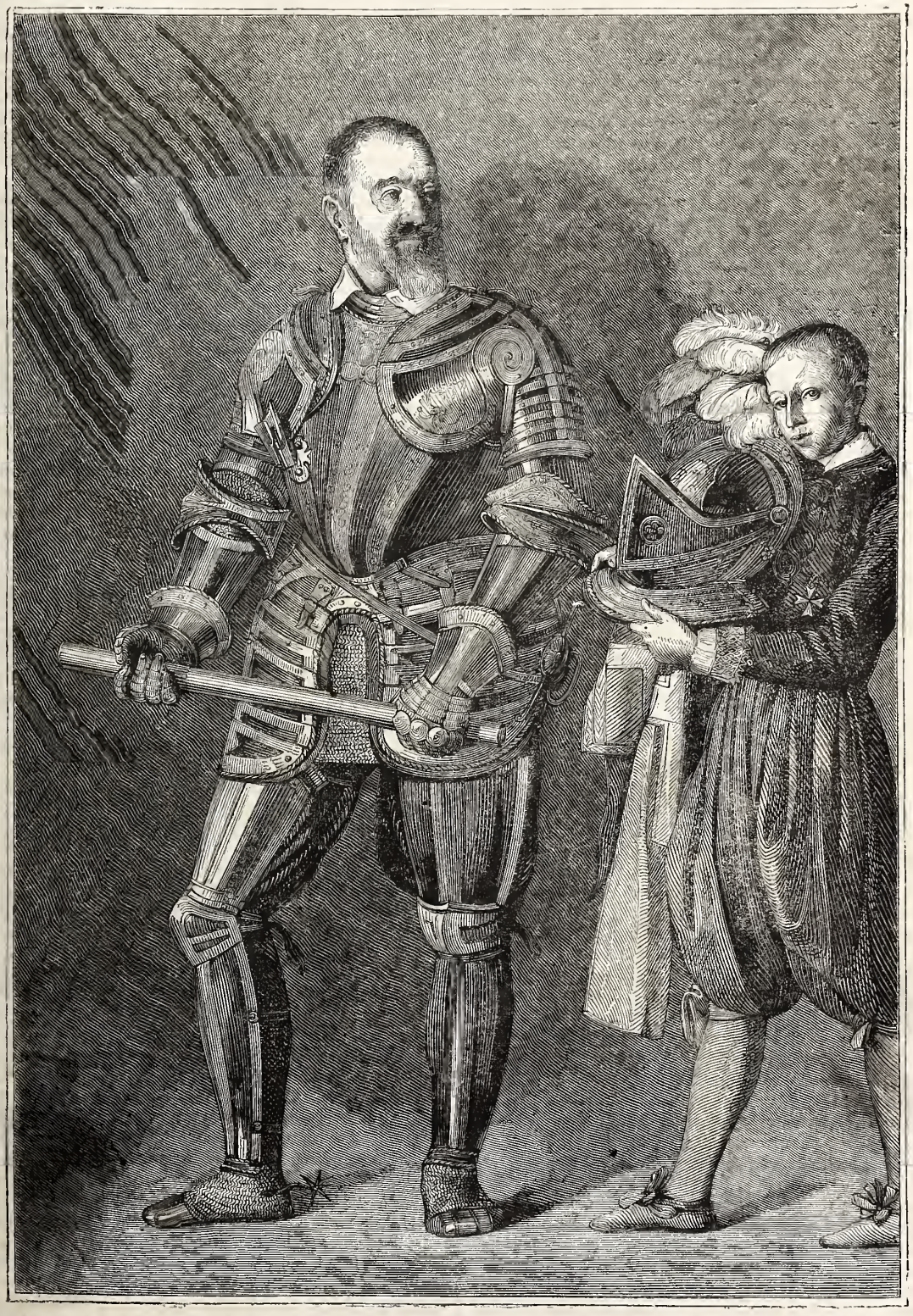
Repeat this row backwards and forwards until 24 are done: then work the same pattern all round for 6 rounds. Thread the rest of the gold beads on the scarlet silk, and do 2, rounds in the same way with it; then 3 rounds of white; then 2 more scarlet, 3 white, then 2 scarlet.

To diminish at the end, do 2 rounds of white, like the previous; then 1 with only 4 chain; then 1 with 3 chain; and finally, a round with 2 chain between the s.c.

Draw it up with a needle and white silk; sew on the tassel, and slip on the rings.

At the other end, do a row to close the round, with the plain scarlet in s.c.; on which work × 6 c.h., miss 4, s.c. under 5th, × 10 times. Turn, and in each loop work 2 s.c., 4 d.c., 2 s.c. Fasten off, and sew on the deep fringe garniture.

THE KNIGHTS OF MALTA.



ALOF DE VIGNACOURT, GRAND MASTER OF THE ORDER. FROM A PAINTING BY MICHAEL ANGELO CARAVAOGI.

One of the most curious features in the great transition which Europe underwent in the middle ages, was the adaptation of christianity to the prejudices and passions of heathenism. Upon the fall of the Roman empire the Church found herself alone amidst the ruins, face to face with an enemy with whom, at first sight, she knew not how to deal. Learning, eloquence logic, historical proofs, purity of life, and repudiation of worldly pomp and vanity, the weapons with which she had so successfully combated the refined philosophy of Greece and the cold scepticism of Rome, could avail her nothing against the fierce

barbarians who had never heard of the subtleties of the schools, whose dearest pleasures were those of sense, and whose paradise in the halls of Woden, paved with skulls and reeking with the blood of their enemies, wanted even the idea of a dreamy but still spiritual and peaceful existence which attached to the Elysium of the ancient world and prepared the votaries of the old gods to hear of, and believe in the joys of the Christian heaven. Argument was useless amongst a people who never debated; appeals to reason or to right were idle where the sword was the supreme arbiter of all controversy, and where learning was unknown. To induce men to whom war was a sacred duty and even a religious rite, at once to lay aside their arms when flushed with victory and incited by plunder, the Church knew to be useless—to denounce their brutality and coarseness she feared would prove dangerous. Wisely perceiving that all change in their manners must be the slow work of time and circumstances, she determined to relinquish some portion of her ancient claims and practices, and adapt herself as best she could to the altered state of things. She saw that the imagination of the Germans was ardent and excitable. The profound gloom and vast extent of their native forests, and the awful but desolate sublimity of the seas of the north, had not been without their effect in rendering these untutored children of nature profoundly susceptible to all influences which savoured of the mysterious and supernatural. To work upon the senses was to win over the whole man. She saw their weak point, and immediately set to work to storm it.

Her worship became gorgeous and imposing; her ceremonies were invested with a lofty and impenetrable sanctity; and the adoration of the Virgin cast out from the hearts of the barbarians the goddesses sung by the olden bards, and made the fire of devotion burn with a steadier and purer flame. But to preach peace and long suffering and the rendering of good for evil to men who had drunk in martial ardour with their mother's milk, would have been "to forbid the mountain pines to wag their high tops, and make no noise when they are fretted with the gusts of heaven." The military spirit could not be eradicated, but it might be brought into subjection, controlled and directed against other objects. This was done. It was enlisted in what was believed to be Christ's service, and encouraged and prompted to expend itself upon the enemies of His faith. The plan was successful. The idea was easily grasped by the new converts, and eagerly acted upon. The growth of chivalry favoured its development. Thousands abandoned the haunts of men to engage in fierce conflicts with the fiends of darkness in lonely fastnesses, where none but God and the saints could witness their struggles and applaud their triumphs. The pangs of hunger and thirst and cold, the promptings of lust and pride, were regarded as so many assaults of the devil. To endure unflinchingly the extremity of self-torture and privation was considered a glorious victory.

Others, whose temperaments were less excitable, and whose imaginations were less ardent, though cheerfully undertaking vows of poverty, obedience, and abnegation of self, were yet loth to abandon the tented field and the fierce excitement of combat with mortal foes. These it was who founded the various military orders of monks which appear so prominently in the history of the middle ages.

Foremost amongst these were the *Knights of St. John of Jerusalem*, or as they were more commonly called, the *Knight's Hospitallers*. This order was founded in Europe, and, proceeding to Jerusalem, its members there built an hospital for the reception and protection of pilgrims to the Holy Sepulchre, who were at that time subjected to great ill-treatment by the infidels.

When Pope Clement V. suppressed the Templars for their numerous and flagrant misdemeanours, he transferred their revenues to the Knights of St. John. The latter continued to flourish and increase in numbers until the downfall of the Latin kingdoms in the East, when they were driven out by the Saracens. They then took refuge in Acre, and ably defended it against the Mohammedans in 1290. They afterwards seized upon the island of Rhodes, and held it against all invaders until 1522, when they were driven out by Solyman, the Turkish Sultan. Charles V. of Germany, having a short time previously come into possession of Naples and Sicily, and some other islands of the Mediterranean, he gave them possession of Malta, to hold it for him in fief, on condition that they should defend Sicily against the assaults of the Turks. Not only, however, did they undertake this, but proclaimed themselves the uncompromising foes of Islamism everywhere.

When they took possession of the island, they found it barren and unpromising. With the exception of one small castle, in which the Grand Master and some other high officers of the order took up their quarters, there was not a single habitation worthy of the name. The population was composed of a few poor fishermen, who managed to eke out but a scanty subsistence. The knights, therefore, relinquished the idea of remaining on it, but determined upon seizing some strong fort on the continent in which they could reside permanently, and to fortify Malta as a place of refuge in case of reverse. When they had accomplished the latter task to their satisfaction, they despatched a force to take possession of Modon, a town in the Morea. The enterprise was partially successful. The place was entered in the night and secured, but on the morrow some of the knights abandoned themselves to excesses unbecoming men of their profession, and the inhabitants, rising *en masse* before the whole of the expedition had arrived, put them to flight after a desperate resistance—but not before they had succeeded in carrying off 800 women.

Being now convinced that Malta must henceforward be their place of abode, the Hospitallers directed their whole attention to its fortification, and did not relax their efforts during ten years, until it was so secured that it might confidently be expected to defy the most desperate assaults of the Saracens. They were now called the *Knights of Malta*, and were looked upon as the defenders of Christendom. Most of the European monarchs hastened to aid them with supplies of men, arms, ammunition, and money; and the order was at last divided into eight *langues*, or nations, representing the eight kingdoms which supported it. From each of these one of the superior officers of the order was taken. Provence supplied the "Grand Commendator of Religion;" Auvergne, the "Marshal;" France, the "Grand Hospitaller;" Italy, the "Chief Admiral;" Germany, the "Grand Bailiff;" Castile, the "Grand Chancellor;" and England, the "Grand Commander of the Cavalry." All these functionaries possessed large endowments of land in their respective countries, the revenues of which they drew every year, and applied them to the aggrandisement of the order; and as the value of this sort of property, of course, every year increased with the growth of commerce and manufactures, the wealth and splendour of the knights at last became scandalous in the eyes of many of the faithful.

Soon after their settlement in Malta, they fixed on a firm basis the rules which were to govern their order. They differ little from those of most other monastic institutions, except that it is apparent that the aristocratic element rather than the purely religious enters largely into their composition. The equality of all men before God, and renunciation of worldly distinctions; "the boast of heraldry, and the pomp of power," which other association of men devoted to the service of the church loudly proclaimed, and laid down as a fundamental principle of their organisation, are not here to be found. None could be admitted into the order who could not prove their nobility through four generations both of their paternal and maternal ancestors; and this rule was hardly ever departed from, except in the case of sons, legitimate or illegitimate, of kings or sovereign princes. All were bound by an oath to render faithful obedience to their superiors, to bear true allegiance to the catholic church, to exercise unceasing hostility towards all pirates and infidels, and to observe the strictest chastity. These conditions might be dispensed with by the pope or by a chapter of the order, but it was in very few cases that the strict letter of the law was ever departed from.

The government of the society was of a mixed description. The Grand Master coined money, pardoned criminals, and exercised all the sovereign powers; but he was assisted by a council of *Grand Crosses*, whom he consulted upon all affairs of importance. Before the admission of any knight he was obliged to undergo a noviciate, longer or shorter according to his age at the period of his application; and during this interval he was carefully trained in the art of warfare both by land and sea. Their fortifications were now brought to the highest state of

efficiency, and they had built and equipped a powerful navy, which took a leading part in the victories of Andrew Doria, the celebrated Genoese admiral. They also assisted Charles V. in his expedition against Algiers; but in May, 1565, their strength and valour were put to the severest test that they were ever destined to undergo. Thirty thousand of the best soldiers of the Turkish army, when Turkey was in her prime, were sent to attack them, under the command of Mustapha Pacha, an old and experienced officer. One of the most memorable sieges recorded in history followed. The Turks were again and again reinforced, and brought to bear on the place all the appliances which science was then introducing into the art of war, but in vain. After a siege of four months they were obliged to relinquish the attempt in despair, after losing twenty-four thousand men and twenty-four pieces of artillery. The loss of the Maltese amounted to two hundred and forty knights of the order and five thousand men. To detail a tithe of the feats of desperate valour performed on both sides would need twice the space we can devote to the subject.

After this no further attack was ever made upon the island. Consciousness of security, and the natural desire of men to repose on the laurels after a dearly bought victory, caused the knights to fall into luxurious and debauched habits. The Grand Master's government became a pure despotism. His court was one of the most splendid in Europe; so that at the close of the eighteenth century nothing was to be seen on the island but frivolity, dissipation, and intrigue. The younger sons of all the great families of Europe crowded to become members of the order, so that it was considered, says a celebrated traveller, "one of the best academies for politeness on the globe." But how this could be in society where no respectable woman ever set her foot, and where the vow of celibacy was openly and shamelessly broken by the formation of connexions vastly more sinful than marriage, we confess we are at a loss to conceive. The end of all this abuse and abomination was, however, close at hand. The age for military monks was gone by, and the world was anxious to be rid of them.

After the French Revolution Buonaparte took possession of the island, and turned the knights out. It was then seized upon by the British, and after varied fortunes was finally ceded to the latter by the Congress of Vienna, and in their possession it now remains. The property of the knights in various countries was appropriated by their respective governments, and the order is now totally extinct.

Vignacourt was the scion of an ancient and noble house of Picardy, and entered the order at an early age. He rose step by step to the dignities of Grand Cross and Grand Hospitaller of France, and was elected Grand Master on the death of Gazzez, in February, 1601. His merit alone had won him the suffrages of the knights. Never was there a more orthodox hater of heretics and infidels, Jews, Turks, and unbelievers, of every hue and clime; and throughout the course of his brilliant reign (for reign it was) he pursued the enemies of the faith with fire and sword with an energy which must have proved well-pleasing in the eyes of the Church. But at the same time he was not inattentive to internal improvement, and he has left behind an imperishable monument of his greatness in the shape of a magnificent aqueduct, four miles long, which he constructed in 1616 to supply the city of Savaletta with water. He was killed by a sunstroke on September 14, 1622.

Our engraving is taken from a portrait of one of the most distinguished of the Grand Masters, Alof de Vignacourt, painted by the dissolute and unfortunate Michael Angelo de Caravaggi during a visit which he once made to the island when flying from the consequences of one of his crimes or indiscretions. He was treated with great kindness and attention, and the portrait was one of the tokens of his gratitude.

STATISTICS OF THE SILK MANUFACTURE OF GREAT BRITAIN.

The silk employed in our manufactures is, like cotton, wholly derived from foreign countries, whence we import it in three different states, viz., raw, waste, and thrown.

Raw silk is that form of the material which is obtained on winding off the thread of several cocoons (envelopes which the silk-worm has spun) together, passing the combined thread round a hollow frame or reel. The skeins thus obtained, are called hanks of raw silk, of which there were imported from the various undermentioned countries in 1849 (the date of the last official classified account), the following weights; viz., British India, 1,804,327 lbs.; China, 1,845,525 lbs.; Turkey, Syria, and Egypt, 318,824 lbs.; Italy, 241,048 lbs.; France, 313,016 lbs.; and from various other countries, smaller quantities amounting to 468,732 lbs.; giving a total of 4,991,472 lbs., of which 473,340 lbs. were re-exported, leaving a balance of more than 4½ millions of pounds for our home manufactures.

Waste silk is composed of the floss silk which covers the cocoons, (which is removed previous to winding off the raw silk), and of the waste obtained in the operations of spinning and throwing. Of this, there were imported in 1849, from Italy, 993,776 lbs.; from France, 268,016 lbs.; and from other countries, 166,992 lbs.; making a total of 1,428,784 lbs.; of which 52,976 lbs. were re-exported, leaving upwards of 1,376,000 lbs. for home consumption.

Thrown silk is the raw silk which has gone through the various operations of winding, cleaning, doubling, and *twisting* or *throwing*, and is in the state ready to be woven into silk and satins. Of thrown silk we imported in 1849, from Italy, 5,232 lbs.; from France, 419,726 lbs.; and from other countries, 189,812 lbs.; making a total of 614,770 lbs.; of which 132,662 lbs. were re-exported, leaving a surplus of upwards of 482,000 lbs. for home use.

In the winding, spinning, and throwing of this raw and waste silk, so as to fit it for the loom, and in weaving the silk, so spun and thrown, into fabrics of various kinds, there were employed in 277 factories 42,544 people (12,667 males, and 29,877 females), of whom 2,385 are boys and 4,766 girls under 13 years of age; 3,214 males between 13 and 18 years of age; 25,111 females above 13 years of age; and 7,068 males above 18 years of age. The number of spindles employed in spinning and throwing the raw silk was 1,225,560, and the number of power looms for weaving, 6,092; these spindles and power looms being set in motion by the aid of 2,858 horse steam-power and 853 horse water-power. The counties in which these silk factories are situated are as follows; viz., in *England*—Cheshire, 97; Lancashire, 29; Derbyshire, 24; Warwickshire, 23; Yorkshire, 16; Somerset, 15; Worcester, 13; Gloucester, 7; Essex, 6; Middlesex, 4; Norfolk, 4; Devonshire 2: total, 272.

In *Scotland*—Lanark, 4; Renfrew, 1: total, 5.

The numbers above given do not, however, represent the total number of people employed in the manufacture of silk goods. In some branches of the trade, as, for instance, that of ribbons, the manufacture is still, for the most part, a domestic one, the spinning and weaving being carried on in the cottages of the workpeople.

The total number of persons employed, including dyers, scourers, makers of machines, foremen, clerks, &c., may be safely estimated at not less than 70,000.

The silk manufacture exhibits another instance of the good effects which have arisen from the removal of legislative interference and protection. In 1821-2-3, when the restrictive system was in full vigour, the raw and thrown silk imported did not exceed 2,329,000 lbs., whilst that of 1850 amounted to 7,159,134 lbs., or *more than treble*.

The total quantity of raw and waste silk imported in 1851 was 6,184,532 lbs., and 412,636 lbs. of thrown silk; making a grand total of 6,597,168 lbs., from which, if we deduct 712,587 lbs. re-exported, we obtain a net total of 5,884,581 lbs.; and if we reckon 250 cocoons to the pound, we find that the labours of no fewer than 1,471,145,260 silkworms were requisite to spin the silk required for our manufactures.

Whilst our importation of cotton manufactured goods is comparatively trifling, that of manufactured silk goods amounts to a considerable sum, the weight of those imported from France and other parts of Europe in 1851 being 583,093 lbs., and the silk goods of Indian manufacture 444,723 lbs.; a large proportion of the Indian silks are re-exported, as well as some portions of the Continental silks. We have no means of ascertaining the quantity or value of silk goods annually manufactured in this country. In 1851, we exported British manufactured silk goods to the amount of £755,962, and of silk mixed with other materials, £378,969. Silk yarn and thrown silk of the value of £196,438 were also exported.

THE SCIENCE OF SHELLS.

Concluded from page 87.

THOUSANDS will acknowledge that it is delightful, on a summer's morning, or when the heat of mid-day is passed, to wander along the beach, and to inhale the invigorating breezes of the ocean. But the number of those is not equally great who attentively examine the various objects to be found there, so full of interest, some of which are strikingly exhibited in the following page. There, amidst the marine plants left by the retiring waters, the star-fishes, and other beings too numerous to name, may be often observed those shell-covered creatures who are once more to engage our attention.

The opposite engraving, in which the sea appears rising upon them, may suggest also the vast variety that is found beneath its waters, serving to recall the words of the poet:—

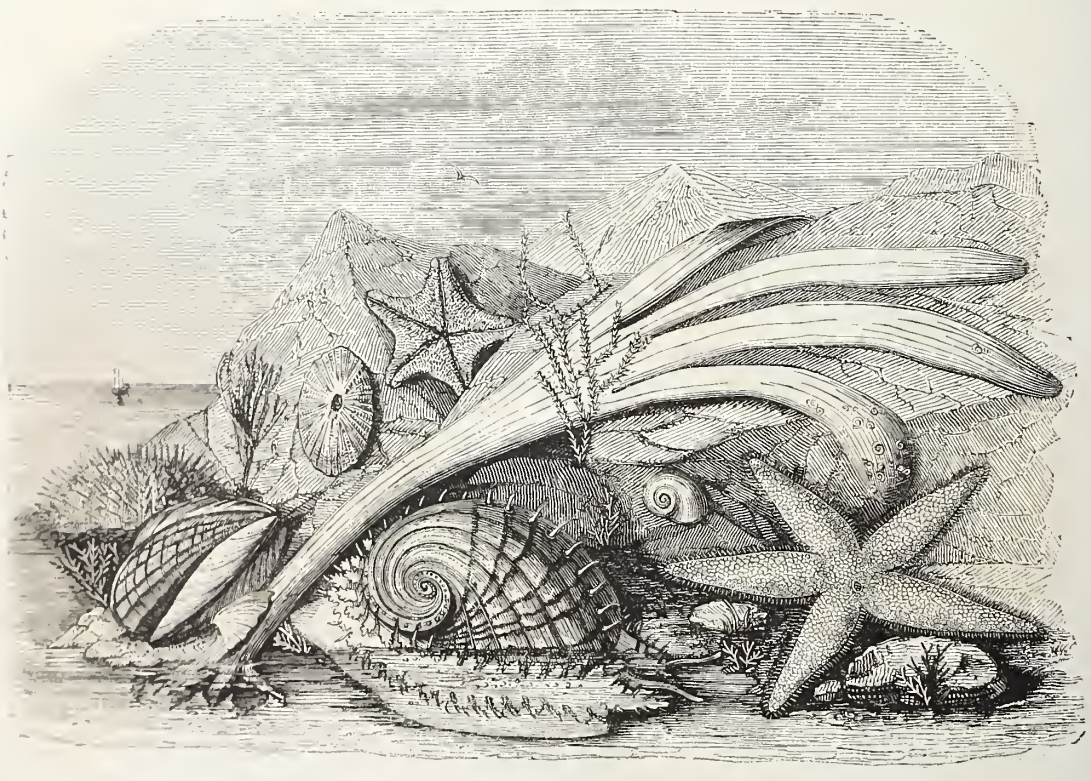
"The floor is of sand, like the mountain drift,
And the pearl-shells spangle the flinty snow;
From coral rocks the sea-plants lift
Their boughs, where the tides and billows flow.

The water is calm and still below,
For the winds and waves are absent there;
And the sands are bright as the stars that glow
In the motionless fields of the upper air.

There, with its waving blade of green,
The sea-flag streams through the silent water
And the crimson leaf of the dulse is seen
To blush like a banner bathed in slaughter.

There, with a light and easy motion,
The fan-coral sweeps through the clear deep sea;
And the yellow and scarlet tufts of ocean
Are blended like corn on the upland lea.

And life in rare and beautiful forms
Is sporting amid those bowers of stone,
And is safe when the wrathful spirit of storms
Has made the top of the waves his own."



THE RETIRING WATERS.

Among the mollusks not yet noticed, is the Cockle (fig. 1, page 182), having a foot which is employed extensively for progressive motion, as well as for concealing itself in the mud or sand. It can also advance at the bottom of the sea, along the surface of the soft earth, pressing backwards with this organ, as a boatman impels his boat onwards by pushing with his pole against the ground in a contrary direction. These mollusks are easily dug up by women and children with a small spade; they are sold by measure, and eaten either raw, boiled, or pickled. They are in season during March, April, and May, and are considered in this country as wholesome food, while they are but little regarded in France.

To the various operations of the mantle of mollusks a reference has already been made, and of one we are now particularly reminded. For sometimes a sudden development occurs in particular parts of the mantle, at different periods, striking out into long slender processes. Hence arise some very remarkable peculiarities. For as every part of the surface of these processes can secrete and form shell, so the portion of it which is consolidated around each process must have at first the shape of a tube closed at the end. As, too, fresh deposits are made by the portion of the mantle inside the tube, so it retires to make way for the additions to the internal space. And at length, the cavity being entirely filled up, the additions to the shell, at first a tube, become entirely solid. The many curious projecting cones or spires of some shells, and which have risen periodically during their growth from their outer surface, have precisely such an origin. A remarkable instance of this occurs in the *Spondylus* (fig. 2, p. 182).

The body of the oyster (fig. 3, p. 182), is so placed in the shell, that the extremity at which the mouth is found is situated in its narrowest part, namely, the hinge. The general form of the body is oval, and wider at one extremity than the other with one of its sides considerably flattened. The mantle has a

double row of fringes on each of its lobes, those on the outer lobe being the shorter. The sense of feeling appears to be very acute in this part of the structure, warning the creature of the least approach of danger; these fringes being retracted by means of a series of extremely fine muscles. Immediately behind the opening of the mouth, there is a kind of bag, which answers the purpose of a stomach, and if cut open will show the apertures of several vessels, by which the bile is conveyed from the liver—a greenish mass which surrounds the stomach on all sides.

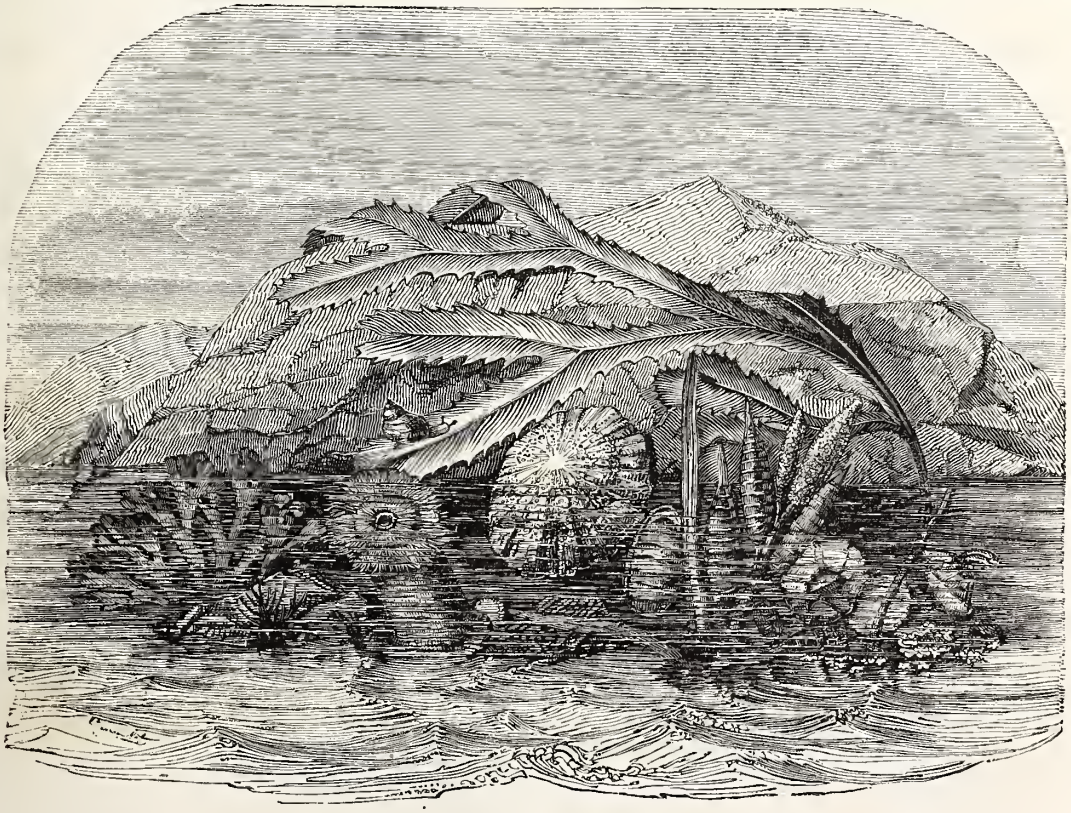
Mr. Jesse mentions his being informed by an observant and veracious person, that during a visit to America, his admiration was excited by the ways of Providence in the formation of oyster-banks on the seabord of Georgia. The land from sea, after about the space of from twelve to eighteen miles, is completely alluvial, and in general consists of uncultivated marsh lands, through which an iron rod might be thrust to the distance of eighteen or twenty feet.

A great number of large creeks and rivers are found meandering through these marshes, and owing to the sinuosities invariably resulting from running water, the bends of these rivers would, in a short time, cut away the adjoining land to such an extent as would make the whole seabord a quagmire. But it is a remarkable fact, that wherever the tide bends its force, its effects are counteracted by walls of living oysters, which grow upon each other from the beds of the rivers to the very verge of the banks. These mollusks are often found in bunches among the long grass, growing upon the surface of the soil. They are in such abundance, that a vessel of a hundred tons might load herself in three times her own length. These banks are the favourite resort of fish and birds, as well as of the racoon, and some other animals, which feed upon the oysters by day and night. Bunches of them, sufficient to fill a bushel, are found matted, as it were, together; and the neighbouring inhabitants and labourers will light a fire upon the marsh grass, roll a bunch of oysters upon it, and then eat them. This barrier of oysters, like rocks of coral, must offer the strongest resistance to the force of the tide.

The shell of the *pinna ingens* is said to be often two feet long, and the threads which it produces are scarcely inferior in beauty and fineness to those of the silk-worm. Separately they possess but little strength, but their great number is amply sufficient to secure the creature in a fixed and suitable situation.

A little crab lives in the shell of the pinna, and "pays her," as an old writer remarks, "a good price for his lodging." It has red eyes, and very acute sight, and no sooner does it observe a cuttle-fish at hand, than it warns the pinna of its approaching foe. It surely must be placed among "the curiosities" of natural history, that—

> "One room contains them, and the partners dwell
> Beneath the convex of one sloping shell;
> Deep in the watery vast the comrades rove,
> And mutual interest binds their constant love.
> That wiser friend the lucky juncture tells
> When in the circuit of his gaping shells
> Fish, wandering, enter; then the bearded guide
> Warns the dull mate, and pricks his tender side;
> He knows the hint, nor at the treatment grieves,
> But hugs the advantage, and the pain forgives;
> His closing shell the pinna sudden joins,
> And 'twixt the pressing sides his prey confines.
> Thus fed by mutual aid, the friendly pair
> Divide their gains, and all their plunder share."



THE RISING WATERS.

In all the bivalves, of which we have given several specimens, there is a general resemblance. The two portions of the shell are united at the back by a hinge-joint, often very artificially constructed, having teeth that lock into each other; and the mechanism of this articulation varies much in different species. The hinge is secured by a substance of great strength. During the life of the animal, the usual and natural state of the shell is that of being kept open for a little distance, so as to allow of the ingress and egress of the water necessary for its nourishmen and respiration.

The adductor muscles alluded to in the previous paper, have great force, so that the shells may be rapidly closed, and kept also, firmly adhering, as a security against danger. Nor is this all: for it was long since observed that some of these mollusks have a power of locomotion by suddenly closing their shells, and thereby expelling the contained water with a degree of force, which, by the reaction of the fluid in the opposite direction, gives

Fig. 1.



The Cockle.

a sensible impulse to the heavy mass. The singular fact has also been noticed that oysters which are attached to rocks, occasionally left dry by the retreat of the tide, always retain within their shells a quantity of water sufficient for respiration, and that they keep the valves closed till the return of the tide; whereas those oysters that are taken from greater depths, in which the water never leaves them, and are afterwards moved to situations where they are exposed to these vicissitudes, of which they had no previous experience, improvidentially open their shells after the sea has left them, and by allowing the water to escape, soon perish.

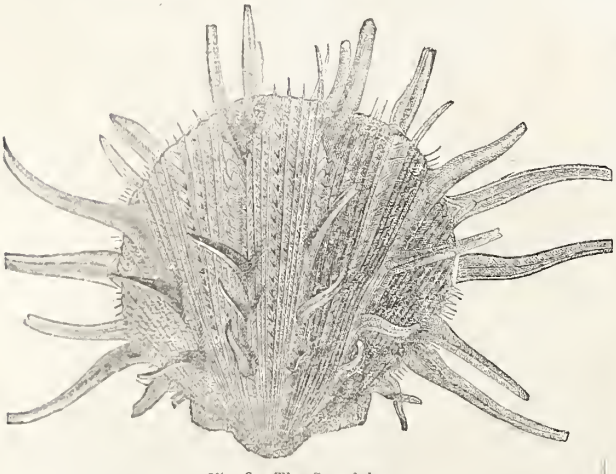


Fig. 2.—The Spondylus.

The third order of headless mollusks is formed of some who are destitute of the power of locomotion. They are attached to foreign bodies, are furnished with two long arms, and are known as the *brachiopods*, or *arm-footed*. The species now existing are very few, and some of them have been brought up from depths of from sixty to ninety fathoms. Their respiration and nutrition under the pressure of such a depth of sea-water, as Mr. Owen remarks, "are subjects suggestive of interesting reflection, and lead one to contemplate with less surprise the great strength and complexity of some of the minutest parts of the frames of these diminutive creatures. In the unbroken stillness which must pervade those abysses, their existence must depend upon their power of exciting a perpetual current around them, in order to dissipate the water already laden with their effete particles, and to bring within the reach of their prehensile organs the animalcules adapted for their sustenance."

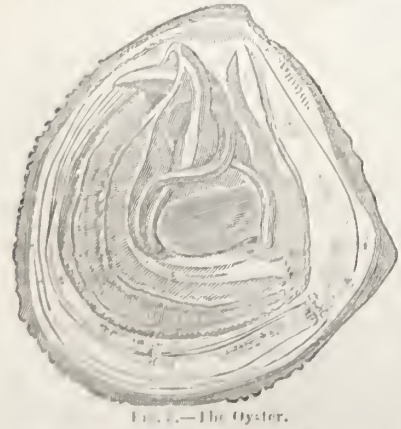


Fig. 3.—The Oyster.

We proceed, now, to glance at the second class of mollusks—those which are provided with a head. In the first order are placed the little creatures which are furnished with two membraneous expansions, like fins, or wings; and hence they take the name of *wing-footed*. Of these the hyalæa is an example (fig. 4.) The best known of them, however, is the *clio borealis*, about an inch in length, yet so abundant in the Arctic Seas as to form an important supply of food to the whale, and to colour the surface of the ocean for leagues. Its head is enveloped in a mantle, which can be retracted at pleasure, so as to expose the month, which is surrounded by three conical appendages. Each of them, when examined by the microscope, is seen to be regularly and numerously covered with red points, which are proved to be distinct, transparent cylinders, sheathing about twenty minute suckers, capable of being protruded, and acting as organs for seizing and retaining prey. It has been calculated that the total nnmber of these snckers on the head of a single clio amounts to 360,000—"an apparatus for prehension," as Professor Rymer Jones remarks, "perhaps unparalleled in the creation."

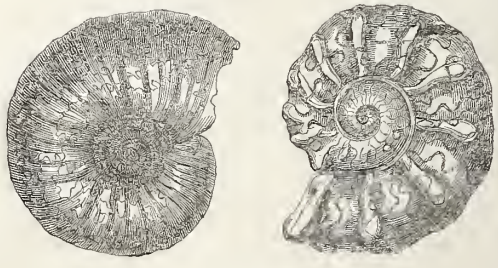
Fig 4.



The Hyalæa.

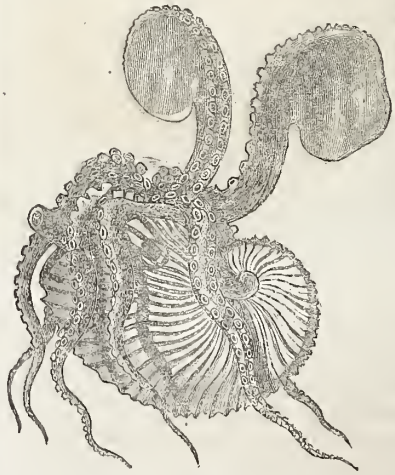
The *gasteropods*, or *belly-footed* creatures, form the second order of the mollusks which have heads. Of these there is a great variety. The common snail furnishes a familiar specimen of them, for as it crawls along it may be observed that the only organ it possesses as a substitute for legs is a broad muscular disc, forming the lower surface of the body. But a particular description of the creatures that belong to this order would far exceed our present limits. It must be remarked, however, that some of them are known only in a fossil state. Such is the ammonite, of which we give two representations; the strength of the shells will be at once apparent (fig. 5.)

Fig. 5.



Ammonites.

Fig. 6.



The Argonaut.

The most remarkable specimen of the third order is the argonaut, or nautilus, respecting which much has been written, and of which we first give the ordinary representation (fig. 6). To it poets have repeatedly referred. Thus Montgomery says in his "Pelican Island:"—

"Light as a flake of foam upon the wind,
Keel upwards, from the deep emerged a shell,
Shaped like the moon ere half her horn is filled:
Fraught with young life, it righted as it rose,
And moved at will along the yielding water.
The native pilot of this little bark
Put out a tier of oars on either side,
Spread to the wafting breeze a two-fold sail;
And mounted up and glided down the billow
In happy freedom, pleased to feel the air,
And wander in the luxury of light."

Byron's description of it is equally beautiful. As he portrays the "Mutiny of the Bounty," he says:—

"The launch is crowded with the faithful few
Who wait their chief, a melancholy crew;
But some remained reluctant on the deck
Of that proud vessel, now a moral wreck—
And view'd their captain's fate with piteous eyes;
While others scoff'd his anguish'd miseries;
Sneered at the prospect of his pigmy sail,
And the slight bark so laden and so frail.
The tender Nautilus, who steers his prow—
The sea-born sailor of his shell canoe—
The ocean Mab—the fairy of the sea—
Seems far less fragile, and, alas! more free.
He, when the lightning-winged tornadoes sweep
The surge, is safe—his port is in the deep—
And triumphs o'er the armadas of mankind,
Which shake the world, yet crumble in the wind."

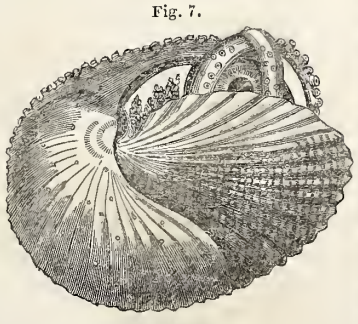
It has even been supposed that this little creature, putting out its oars, and spreading its sail to the wind, first suggested to man the idea of navigating the waters. Such was the idea of Pope, when he said:—

"Learn of the little nautilus to sail;
Spread the thin oar, and catch the driving gale."

But we have in such representations, often to the production of beautiful pictures, imagination only, and not reality. The fact is, that from the days of Aristotle the history of the creature referred to has been enveloped with a tissue of errors. The means for their detection have been at hand, but they have not been employed. The opportunities for putting an end to the prevailing assumption have been numerous, but they have not been made available.

It remained for a French lady, Madame Power, residing in Sicily, to give us a just description of the nautilus (fig. 7). She has shown, among other things of great interest, that the shell, while investing the living animal, is not hard as we see it in cabinets, but soft, yielding, and flexible, with sufficient elasticity for the respiratory functions, and the degree of locomotion required by its inhabitant. It is also permeable by light. It has been proved, moreover, that the embryo of the nautilus, while yet in the egg, and at an advanced period of development, has neither arms nor shell; but that both become developed at a given time, namely, ten or twelve days after extrusion. It was further discovered that the inhabitant of this shell possesses the power of repairing it when fractured, or when portions were removed for the purpose of experiment, and with the same matter as that of which the shell consists; that the shell is moulded on the body of the animal, to the form of which it is beautifully adapted; that, in every instance, the animal retains the same relative position to its shell; and that the result of removing the shell is an immediate loss of vital power, which is soon followed by death.

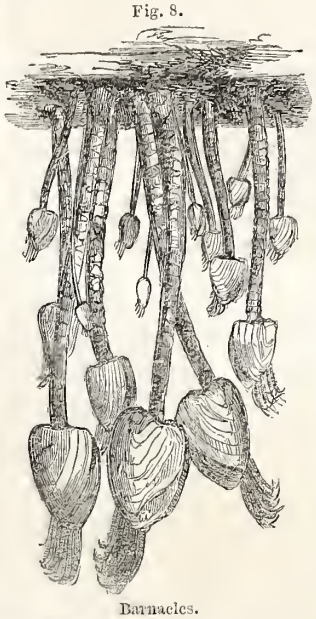
Fig. 7.



The Nautilus.

Madame Power describes the arms as being placed next to the involuted spire of the shell, over which they are bent, and expanded forward so as to cover and conceal the whole of the shell, and from which they are occasionally retracted by the living creature. She states, also, that these expanded membranes are the organs of constructing, and subsequently repairing the shell. The accuracy of this lady's description has been confirmed by M. Rang. Professor Owen has published a valuable memoir of "The Pearly Nautilus," founded on a minute anatomical investigation of one brought to England by George Bennett, Esq., F.L.S. In his note, made at the island of Erromanga, he says:—"In the evening a pearly nautilus was seen in Marekini Bay floating on the surface of the water, not far distant from the ship, and resembling, as the sailors expressed it, a dead tortoise-shell cat in the water."

Fig. 8.



Barnacles.

Another marine animal is the barnacle, often found attached to rocks, stones, keils of ships, and masses of floating timber, torn off from vessels that have been wrecked. This attachment is made by a fleshy stem; and sometimes a large mass of barnacles may be observed together. On examining one of them, it is found to consist of a body, inclosed within fine shelly valves, spread on a tough membrane, by which they are united. It has arms covered with a slightly horny vestment, and furnished at each joint with hair-like appendages, forming a sort of fringe. While the barnacle is on the watch for its prey, these arms are protruded, and together with their fringes, which are in constant motion, serve the purpose of a sweeping-net. The delicacy of touch with which these organs are endued is extreme, and the instant some minute being is touched, it becomes entangled in their folds, is carried to the mouth, and, being crushed by the jaws, is transferred to the stomach (fig. 8).

Among the uneducated on the shores all of the European seas the curious error prevails, that the barnacle contains the young of a species of goose, which was thence called the Barnacle goose. Nor have the educated been free from its influence. The following notice was not only sent by Sir Robert Moray to the Royal Society, but actually printed by them in their "Transactions:"—"The pedicle seems to draw and convey the matter which serves for the growth and vegetation of the shell, and the little bird within it. In every shell that I opened I found a perfect *sea-fowl;* the little *bill* like that of a goose; the *eyes* marked; the head, neck, breast, wings, tail, and feet formed; the *feathers* everywhere perfectly shaped, and blackish coloured; and the *feet* like those of other water-fowl, to my best remembrance. Nor did I ever see any of the little birds alive, nor meet with anybody that did; only some credible persons have assured me that they have been seen, some as big as the fist." It is strange that men of intelligence should be so deceived; but those who can examine the *real* history of the Barnacle, will find it extremely curious.

But here our limits constrain us to pause. Spenser exclaimed:—

"O, what an endless work have I in hand,
To count the seas abundant progeny!
Whose fruitful seede far passeth those in land,
And also those which roame in the azure sky;
And much more earth to tell the starres on hy,
Allbe they endless seem in estimation,
Than to recount the seas posterity
So fertile be the floods in generation,
So huge their numbers, and so numberlesse their nation."

At some remarkable objects, however, we have had an opportunity to look; and we can promise our readers who will pursue the subject, much pleasure as well as instruction in so doing. All we can do is to point out the path, and to urge them onward.

JEAN BAPTISTE OUDRY.

Oudry was a French painter of the eighteenth century, and, although far above mediocrity, his works have never been so highly valued in England as amongst his own countrymen. His paintings on historical subjects are very numerous, but it is to his paintings of animals and scenes connected with the chase that he owes most of his celebrity; he was, in short, the French Landseer. He was born at Paris on the 17th of March, 1686. His father was a painter and picture dealer besides, which gave the boy a taste for art; but it was Michael Serre, a Provençal painter, who gave him his first lessons. Young Oudry was placed in his studio when eighteen years of age. Serre was just the man to instruct him; ardent, imaginative, and enthusiastic.



J. B. OUDRY; FROM A DRAWING BY BOCOURT.

After his departure from Paris, he connected himself with Largillière, and from him acquired that excellence in the mixing of colours for which he was so distinguished. After his election as one of the professors in the Royal Academy of Painting, he made a graceful acknowledgement in his opening address of how much of his proficiency he owed to the able instructions of his old master. Peter I. of Russia visited Paris about this time, and Oudry painted his portrait; and so pleased was the Czar with the likeness, that he insisted on his accompanying him to Moscow; and to escape from his importunity, the artist was obliged to hide himself until he had taken his departure.

His earliest ambition was to be successful in historical painting, but it soon became apparent, notwithstanding the success of some of his efforts, that his forte did not lie on this. He often repeated in after life the prophecy of Largillière, *Tu ne seras jamais qu'un peintre de chiens*—"You will never be anything but a painter of dogs." Before the revolution of 1793, all the royal residences in France—Versailles, Choisy, Marly, Compiègne, Chantilly, &c., contained many of his works, and, in fact, he was more essentially the chief painter to the king than Charles Vanloo himself. He was greatly admired by various other European sovereigns. He was invited to the Danish court, and the Prince of Mecklenburgh erected a gallery specially for the reception of his pictures. The French monarch was, however, successful in retaining him. He assigned a suit of apartments in the *Cour des Princes*, in the Tuileries, and settled a liberal pension upon him. His duties were to follow the king whenever he went out stag-hunting, so that he might sketch from nature; and a stud of horses were set apart for his sole use. For much the same purpose Vander Meulen accompanied Louis XIV. through his campaigns in the Netherlands.

At the revolution, collections of his paintings, which were found in all the royal palaces, were broken up and scattered far and wide. In the Louvre but few of his works are to be found, and these are surpassed in number and importance by those of Desportes, although no picture of Desportes', taken singly, can equal "The Dog and Heron," from which our engraving is taken. This is Oudry's *chef d'œuvre*. All his principal works are now at Fontainebleau. There are there two rooms, known as the *Salons des Chasses*, and in these his four finest paintings may be seen—"The Hunters' Rendezvous," in which Louis XV. is seen giving his orders to De Nestier, his huntsman; "Louis XV.

Hunting in the Forest of Compiègne;" and the same prince "Hunting among the Rocks of Franchard." In the last, Oudry has painted himself. It is in the execution of these great autumn landscapes, filled with packs of hounds, animated groups of huntsmen, and mounted courtiers, that Oudry gives the highest proofs of his skill, and establishes his claim to be considered beyond all doubt the painter of the chase *par excellence*.

A rather singular mistake was made in connexion with some of these paintings. In the Louvre may be seen copies of nine of them executed upon porcelain by the best artists of the Royal Manufactory at Sèvres. When Louis XVI. succeeded his grandfather, he showed himself passionately fond of the chase, and the artists, wishing to compliment him, substituted his portrait for that of Louis XV. as painted by Oudry, leaving the costume and all other parts of the figure still the same. When we consider the fickleness of fashion in matters of dress in the proverbially fickle land of France, we may form some idea of the incongruity which the alteration must have presented at the time.



DOG AND HERON; DRAWN BY FREEMAN FROM A PAINTING BY OUDRY.

Oudry was an extraordinarily prolific painter, so that there are few amateurs in any part of Europe who do not possess some of the productions of his pencil. Many of them have been engraved by Sylvestre, Lebas, Daullé, and Basan. Amongst the best of these is a "Spaniel catching a Wild Duck," and some other works of a similar nature, which have been greatly admired for the delicacy and truthfulness of their execution and finish. We are assured by some of his contemporaries that he could hardly ever be induced to devote even the afternoon to pleasure or amusement of any kind. His brush and palette were ever in his hands. He painted almost without cessation, occupying himself frequently, however, in drawing from nature. His evenings were sometimes devoted to the sketching of studies, many of which are still in the hands of amateurs. He made a great many journeys to Dieppe for the purpose of painting fish while in a state of freshness, immediately after having been taken out of the water. It is said that, whenever he commenced a landscape, he pitched a tent on the spot, and lived in it until the work was finished, or, at least, was in an advanced state;—so that it has been alleged, and not without truth, that some of his sketches on grey paper of hedge-rows, trees, and the appearances of rural scenery at sunrise, are amongst his best efforts. He was possessed of great powers of observation and accuracy of perception. In some of his pictures of the chase not only are the prominent personages faithful portraits, but the dogs of the royal kennel were so faithfully rendered, that the king was able to recognise each without difficulty;—so that all the favourite dogs of Louis XV. have their portraits hanging up at the Louvre. The king took a singular pleasure in seeing Oudry paint the partridges, pheasants, &c., which himself he had killed.

He was not less excellent as an engraver than as a painter, and it is said that some of his achievements in this way will not suffer by comparison with those of any age. He drew a number of designs to illustrate the fables of La Fontaine, but, unfortunately, they have all been lost.

Louis XV. took good care to reward his painter, and, had all the favours of this imbecile monarch been equally-well bestowed, it might have done much to postpone or mitigate the horrors of the revolution which followed so soon upon his death. He appointed him first director of the Gobelin Manufactory, and then of that of Beauvais. In both these establishments his chief paintings have been copied on tapestry with rare skill and faithfulness. All the portraits which have remained to us of Oudry represent him as rather stout and corpulent—even that which he himself painted in the chase scene. In 1795 he suffered from an attack of apoplexy and paralysis, both at the same time, and, on his partial recovery, he found, to his great chagrin and disappointment, that his hands had become so powerless that he could no longer hold pencil or brush. Three months afterwards he determined upon going to Beauvais, hoping that the air of the place would restore him; but he died there shortly after his arrival, in April, 1795, in the sixty-ninth year of his age, leaving behind him one son, who had been his pupil, and had been received into the Royal Academy during his lifetime.

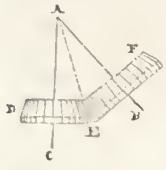
KINEMATICS;

OR THE TRANSFORMATION AND REGULATION OF MOTION.

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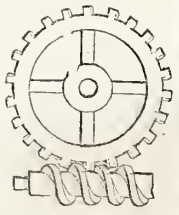
THE transmission of motion between two axes of rotation A B, A C, fig. 22, which form a certain angle in the same plane, is effected by means of conical or bevel gearing. The primitive cones are generated by the angles E A B, E A C; so that the perpendiculars drawn from any point in A E to the axes A B, A C, are in the inverse ratio of the angular velocities, or of the numbers of revolution of the wheels D E, E F.

Fig. 22.



When the axes are not in the same plane, but are at right angles to each other, the gearing takes the form of a toothed wheel working into an endless screw, as represented in fig. 23.

Fig. 23.



The universal joint invented by Dr. Hooke is adapted for transmitting motion from one axis to another, although not in the same plane, and even variable in position. It consists of a cross, of which the four arms are equal; their opposite extremities are jointed to the extremities of two semi-circles, whose convex summits are fixed to the ends of two moveable axes, and whose concavities are turned towards each other. By this construction, one of the axes cannot turn without the other turning also on itself. When the angle formed by the two axes is less than 140 degs., a double joint must be employed, as represented in fig. 24.

Fig. 24.

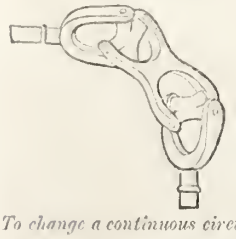
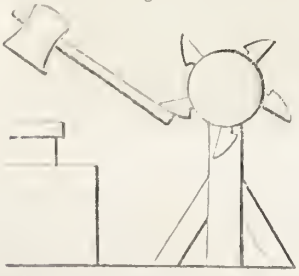


Fig. 25.



To change a continuous circular motion into an alternate circular one.—A connecting-rod attached at one of its extremities to a working-beam, and at the other to a crank, transforms the alternate circular motion of the former into the continued circular motion of the latter, as represented in fig. 25. The sun and planet-wheel, invented by Watt for his earlier steam-engines, is another example of this transformation.

Fig. 26.



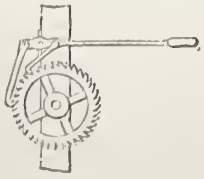
It is also effected by a wheel having wipers on its circumference, which successively raises and drops a sledge-hammer with great velocity by its continued motion, thus giving every part of the latter a reciprocating circular motion round its axis, as represented in fig. 26.

The pedal and wheel of the knife-grinder, and the lever of *Lagarouse*, represented in figures 27 and 28, are other examples of this transformation. In the latter, continuous motion is given to a wheel and axle by the alternate motion of the arms of a lever.

Fig. 27.

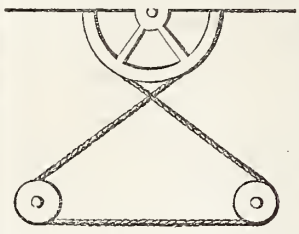


Fig. 28.



To change an alternate rectilinear motion into an alternate circular one.—A lever and half-wheel turning on an axis, to the latter of which is attached an endless cord passing over two pullies in the same plane with it, will give an alternate rectilineal motion to any point in the cord, when alternate circular motion is given to the lever and half-wheel, as represented in fig. 29.

Fig. 29.



The apparatus called *lazy-tongs*, represented in fig. 30, used for children's toys, has been employed for this transformation of motion, but only on a limited scale, for want of strength in the parts.

Fig. 30.

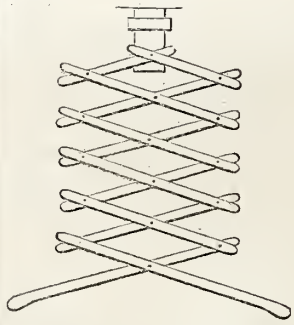
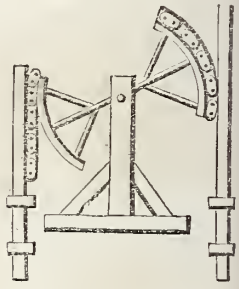


Fig. 31.



By means of two chains attached at their lower extremities to two vertical rods, and at their upper extremities to two arched heads of a working beam, as in Newcomen's atmospheric and Watt's earlier steam-engines, fig. 31, the alternate circular motion of the latter is transformed into the alternate rectilinear motion of the former.

The jointed parallelogram of Watt, called the "Parallel Motion," represented in fig. 32, gives a very close approximation to the solution of this problem. A B is a working-beam turning on the axis A. I is another fixed point. The rods B C, C D, D E, and D I, are all moveable on the pivots B, C, D, E, and I. When the beam receives an alternate motion of rotation round its axis A, the parallelogram assumes a variety of shapes, and the point c tends to describe a curve of which the complete form is indicated by the dotted line resembling the figure 8. But this curve differs very little from a vertical line c R within the limits of the motion of the beam; so that the rod c R takes an alternate motion very nearly vertical.

Fig. 32.

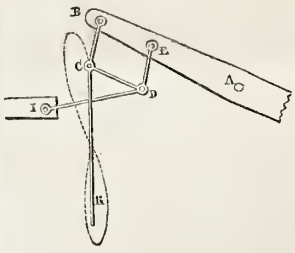
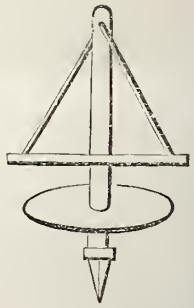


Fig. 33.



The drilling machine represented in fig. 33, is another example of this transformation. It is a wheel which moves round an axis or spindle, and also longitudinally on it, by the twisting of a rope fastened to the opposite extremities of its diameter, and passing through a hole at the top of the spindle; the spindle is furnished with a fly to continue and give concentrated force to the motion at the moment required. The common drill-bow is another example of this species of motion.

To change one alternate circular motion into another.—This may be effected by the same transformations that convert one continuous circular motion into another. It is also effected by some

species of turning-lathes, and bell-crank-work, represented in figures 34 and 35; and the motion of the latter is not limited to the same plane, as indicated in fig. 36.

Fig. 34.

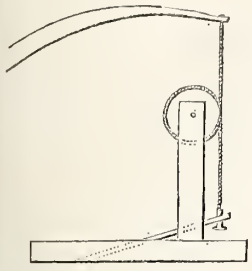


Fig. 35.

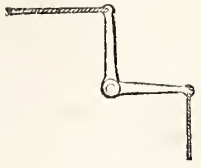
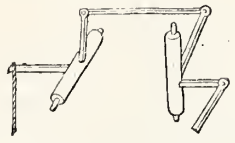
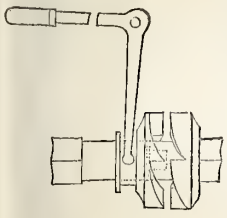


Fig. 36.



To modify the velocity of motion in machines, and to engage or disengage machinery.—The simplest mode of suddenly suspending or restoring motion in a machine consists in throwing one of the wheels, as the driver, out of or into geering, by making it moveable in the longitudinal direction of the common axle of the driver and the follower; the teeth of the former may thus be either disengaged from those of the latter, or re-engaged with them, at pleasure, by its alternate motion on the axle. Fig. 37 is a representation of this method.

Fig. 37.



The motion of one of the wheels round the common axle can likewise be so regulated, that it shall only transmit its motion to the axle when acted on by means of a handle, as represented in fig. 38.

Fig. 38.

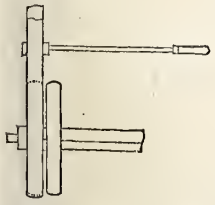
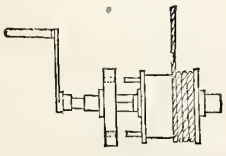


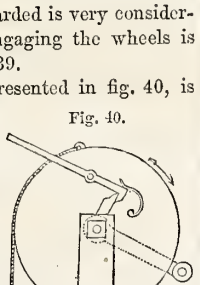
Fig. 39.



When the force to be transmitted or retarded is very considerable, the apparatus for engaging or disengaging the wheels is modified in the manner represented in fig. 39.

The apparatus called detent-wheel, represented in fig. 40, is composed of an axle, worked by a winch, and carrying a projecting pin. On the same axle is fixed a friction-wheel, which carries a detent, or latch, formed of a hooked lever, acted on by a spring. When the hook is locked on the projecting pin of the axle, motion is communicated to the wheel by the winch, which raises a cord fastened to its circumference, and loaded with a weight. The motion is continued until the lever, meeting the extremity of a fixed pin, turns over and relieves the hook, when the weight descends, and produces motion in the wheel.

Fig. 40.



Of the different kinds of apparatus for engaging and disengaging machinery, the tongs or catches employed in pile-driving engines are the most simple. A variety of these is represented in figs. 41 and 42. They consist of one or two bent levers, retained in their position by springs, and furnished with hooks, by which the ram or hammer is suspended; as soon as they are elevated to the required height, their upper extremities come in contact with fixed pins, which press upon the springs, release the hooks, and permit the ram to fall.

Fig. 41.

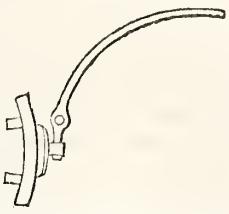


Fig. 42.



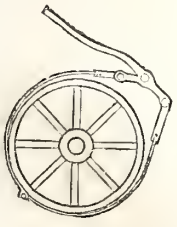
A break is an apparatus for moderating at pleasure, or annihilating entirely, the velocity of any machine in motion. The most common examples are those employed to hinder the rapid descent of carriages down an incline, or to stop a railway train at a station. Fig. 43 represents a break composed of a circular piece of wood or metal, placed behind one of the great wheels, so that it can be pressed against it by means of a screw, which communicates with a handle by an endless cord. This handle is placed within reach of the platform on which the conductor stands, so that he can stop the carriage without leaving his place.

Fig. 43.



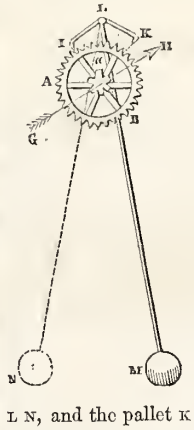
This kind of break has the serious defect of exerting a pressure on the axle, which tends to twist it and force out the bolt. Fig. 44 represents a method free from this defect. The break is composed of two circular pieces of metal, symmetrically placed on the wheel with relation to its vertical axis, so that they can be fastened completely round the wheel, and employed to stop its motion, without exerting any pressure on the axle. This plan has been employed on railways with great advantage. Applied to the two wheels of the same pair of a carriage, it almost instantaneously causes their rotation to cease, and surely and promptly stops a train running with great velocity, without occasioning a violent shock, or a sudden transition from motion to rest.

Fig. 44.



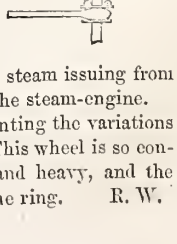
The anchor escapement, represented in fig. 45, is used for regulating the motion of a clock. The escapement-wheel, A B, which carries the seconds'-hand, G H, tends to revolve from A to B with an accelerated velocity, in consequence of the action of the weight. L M is a pendulum, which oscillates round the point of suspension, L, and is such that it makes one oscillation while the seconds'-hand, G H, advances one-sixtieth part of the dial's circle. The pallets I and K make one piece with the pendulum, and, of course, vibrate with it. When the pendulum is in the position represented in the figure, the pallet I stops the motion of the wheel, A B, and the action of the moving power. But the bob M of the pendulum brings back the rod, L M, into the vertical direction by the action of gravity, and then the pallet I releases the wheel, which again revolves by that of the moving power. In the meantime the pendulum swings into the position L N, and the pallet K takes up another tooth of the wheel, thus momentarily suspending the motion of rotation, when the same operation takes place as before; so that, in two oscillations of the pendulum, one tooth escapes from each pallet, and the regularity of the motion is continued as long as the weight continues to act.

Fig. 45.



The conical pendulum, which acts by its centrifugal force, is perhaps the finest specimen of a regulator of motion. Two equal rods, equally loaded with balls at their lower extremities, and fastened by hinges at their upper extremities to a vertical axle, are made to revolve with it by the action of the machine. The variations of velocity in the motion of the axle are shown by the corresponding variations in the angular distance between the rods produced by the action of the centrifugal force of the balls. This apparatus, represented in fig. 46, has been ingeniously applied to the regulation of the prime mover, whether it be a fall of water, or steam issuing from a boiler. It is an indispensable requisite to the steam-engine.

Fig. 46.



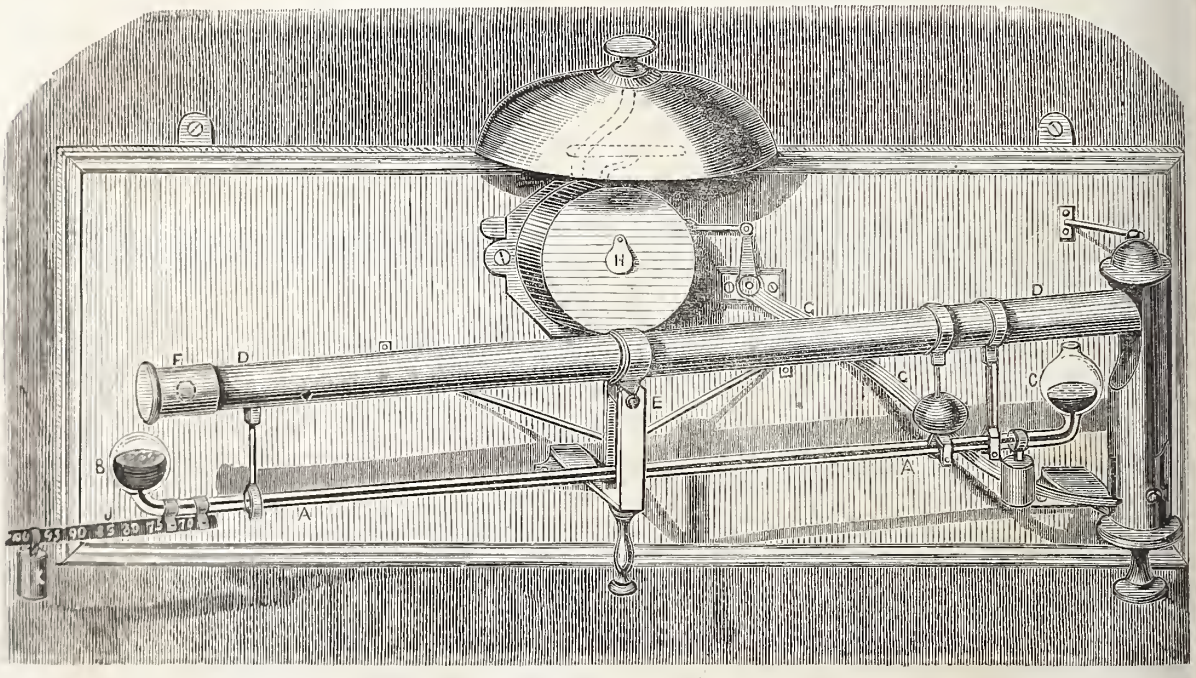
One of the most useful inventions for preventing the variations is well known by the name of a fly-wheel. This wheel is so constructed as to have its ring very massive and heavy, and the spokes only of sufficient strength to support the ring. R. W.

BAKER'S THERMOMETRIC ALARUM.

That certain information respecting the actual temperature of particular places at particular times is a real desideratum, the increasing manufacture and use of thermometers amply proves. But there are occasions and circumstances where there exist the greatest need for accurate information on this point, and at the same time a possibility of the information furnished by a thermometer being unnoticed or disregarded.

To render the aid furnished by a thermometer more available, and to increase in a remarkable degree the utility of such an instrument, Mr. Baker has invented what he terms a Thermometric Alarum, represented in the accompanying engraving, which the following description will explain. This instrument consists of a glass tube A A, having a bulb at each end partly filled with mercury, one of which, B, also contains a small quantity of ether, the vapour of which acts as a thermometer, by forcing (when it expands by heat) the mercury into the other bulb C, which bulb is open to the external air; this glass tube, to which is fixed the brass tube D D, placed above it, being set on a balance at F, the weight by this means preponderates on the opposite end, causing the tube to change its position. The brass tube contains a ball, F which rolls down it and then falls upon a lever by liberating the clock-work H, which strikes the bell and will continue to do so for some time. A graduated scale J, is attached to the instrument, on which slides a weight, the mode of adjusting which being the same as that of a steelyard.

Thus, supposing the weight to be set at 95° on the scale, the moment the temperature of the apartment, stove, conservatory, or other place has reached the degree above indicated, and the instrument has a tendency to oscillate, the mercury in B, by its gravitation, runs instantly into the bulb C, keeping it in the lowest position, so that the ball *must* go (unless kept in its place by artificial means) and cause the alarm-bell to be rung. Instead of ether, air may be used, as it answers the purpose; but the vapour of ether is a more sensitive medium. To all persons who have valuable property at stake which would be injured or spoiled if overheated, such an instrument is invaluable. Its useful application to various purposes in the arts and manufactures will at once be obvious. In every operation or manufacture requiring a means of regulating the temperature of the drying rooms or kilns employed, such an instrument will prove of great value. The manufacturer of fine colours and of various chemical preparations often suffers considerable loss from the want of an efficient means of promptly ascertaining the least rise in the temperature of the rooms used for drying his colours and other delicate preparations, which are extremely liable to injury if the temperature of the apartment be carried beyond a given point. Nor is the beneficial application of such an instrument limited to its use in commercial operations. It may also be most advantageously employed in domestic life, in guarding the welfare of the invalid, the temperature of whose apartment may be regulated with the greatest degree of precision by the use of the Alarum, thus avoiding the ill effects resulting from an overheated atmosphere. The same advantageous result may be obtained by its employment in conservatories and hothouses, where a slight neglect or inattention on the part of the person in charge may lead to the serious injury or even destruction of the rarest and most valuable plants; whilst, if the Thermometric Alarum be used, it will give timely warning of the fatal increase of temperature, and even call the attention of persons at some distance from the spot. Not only against damage of this kind would this instrument be a faithful monitor, but it is no less valuable as a fire alarum; for suppose it to be placed in a warehouse, store-room, or hold of a ship, and a fire breaks out unperceived, immediately the temperature becomes raised above the degree at which the apparatus is set, the alarum is instantly given, and time afforded for the prevention of any serious damage.



THERMOMETRIC ALARUM—SHOWN AT THE GREAT EXHIBITION BY BAKER, OF HATTON GARDEN.

ART INDUSTRY.

The influence of art in manufactures has been so far extended, and has gained such power during the last few years, that many industrial branches may almost be classed among the arts. We shall not raise the question whether this influence is advantageous or not as regards the excellence or worth of idustrial produets, however interesting to the artist or instructive to the manufacturer it might prove; but from time to time it is our intention to illustrate the innumerable ways in which artistic forms may be engrafted upon the practical knowledge of the present age.

We present to our readers a specimen of each of the three branches into which we intend dividing our representations of "Art Industry:"—

I.—MANUFACTURES.

The "covered earthen vase," by Ernst Marsh, of Charlottenburg, is a beautiful specimen of the articles proceeding from his manufactory, which are, almost without exception, remarkable, as well for their excellence as for the antique beauty of their designs. This vase is of red clay, in the Gothic style, is eleven inches and a half in height, and six inches in diameter. The stem is formed of three crouching gnomes, which as caryatides support the upper portion of the vase.—(Fig. 1.)

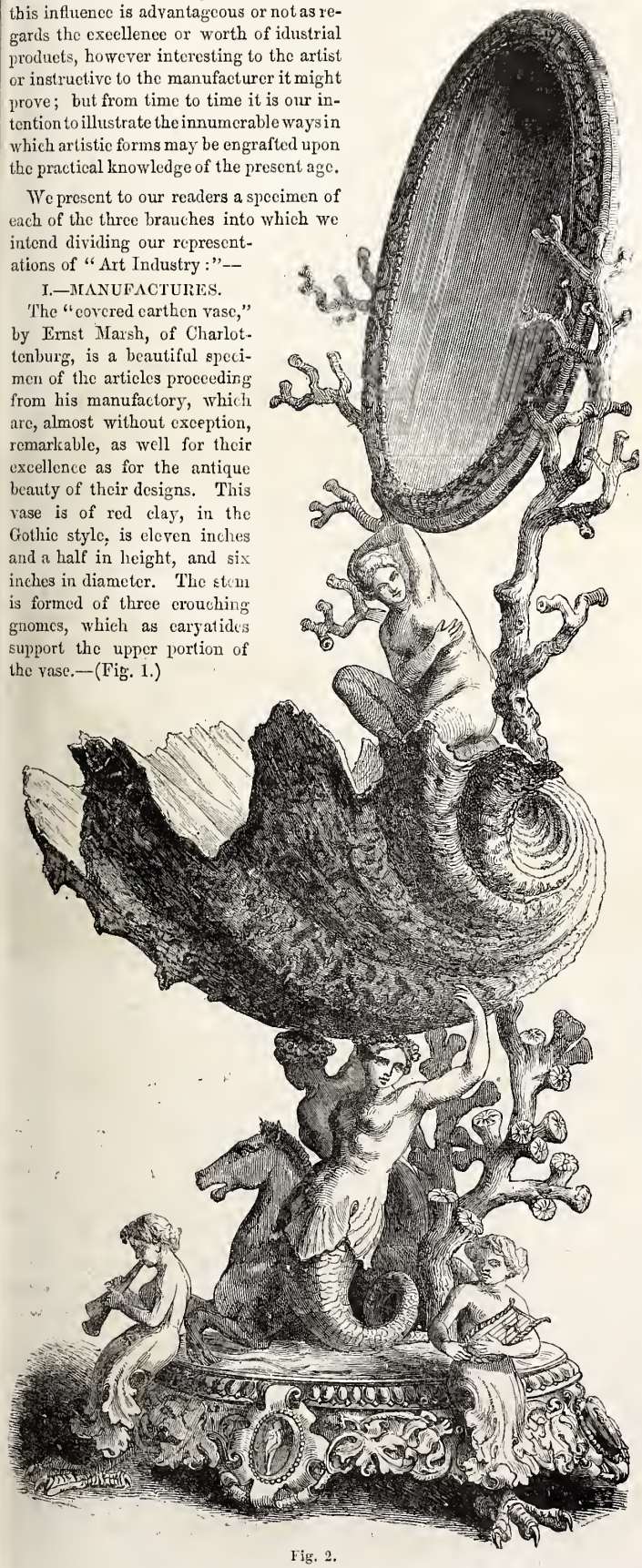


Fig. 2.

Fig. 1.

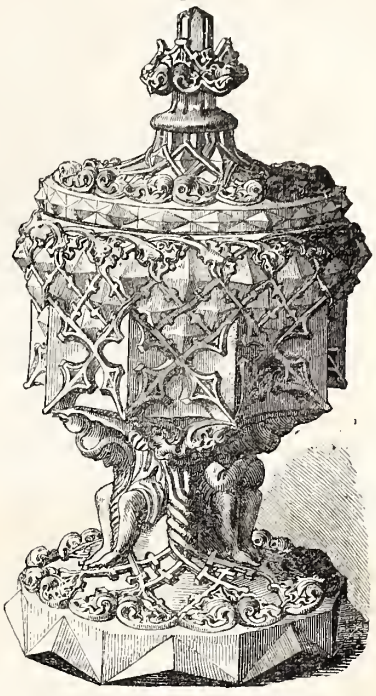


Fig. 3.



Fig. 4.

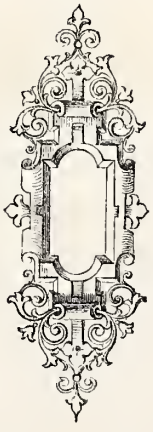


Fig. 5.

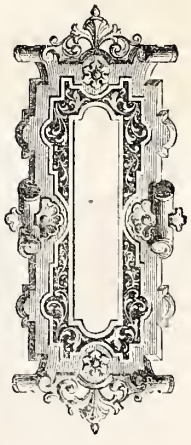


Fig. 6.



II.—DESIGNS FOR ART-INDUSTRIAL OBJECTS.

The French have only been able to gain the position of dictators of ornamental industry through that portion of their national character which impels them to regard the beautiful in an elegant and pleasing light, and to mature such ideas in a practical manner; whereas many other nations entirely neglect beauty for utility, or else overlook elegance and grace in their endeavours to be strictly antique. The French raise industry to the sphere of art, while others fear to subject art to the severe laws of common utility. This is the reason that France has so long been unrivalled in producing designs for artistic manufactures. The accompanying design for a TOILET-STAND AND MIRROR (fig. 2) is a beautiful specimen of the Renaissance style, although decidedly original in design. The foot, the group supporting the shell, as well as the frame of the mirror, are to be executed in silver, and the branch which rises behind the figures and supports the glass, is to be a natural piece of coral. The shell, also, is not an imitation, but a natural specimen. Several cameos are set in the base, which add very considerably to the artistic finish of the whole. This stand is represented at about two-thirds the natural size.

III.—ORNAMENTAL DESIGN FOR MANUFACTURERS.

Under this head we shall class all minor ornaments for door-plates, picture-frames, decoration, and similar branches of manufacture.

The four engravings (fig. 3, 4, 5, 6) are designed with great freedom and taste, and are well adapted to the purpose for which they are intended.

PERSPECTIVE.

ANOTHER branch of drawing now demands our attention: it is that of presenting, on a plane surface, true resemblances or pictures of objects, just as they appear to the eye from any distance or situation, real or imaginary; and to this department of art has been given the name of Perspective.

The first person who is said to have laid down any rules of perspective was an Italian named Pietro del Borgo. He supposed objects to be placed beyond a transparent tablet, and endeavoured to trace the images which rays of light emitted from them would make upon it. The book he wrote on the subject is not now extant; but on the principles it contained, Albert Durer constructed a machine by which he could trace the perspective appearance of objects.

They were also studied by Balthasar Peruzzi, to whom we owe the discovery of the points of distance, to which all lines that make an angle of forty-five degrees with the ground line are drawn. It was soon afterwards found, by another Italian, Guido Ubaldi, that all the lines that are parallel to one another, if they be inclined to the ground line, converge to some point in the horizontal line; and that through this point also a line drawn from the eye, parallel to them, will pass. A tolerably complete theory of perspective was now formed.

Subsequent geometricians made great improvements in the rules that were thus obtained, and to the labours of some of them we are laid under special obligations.

A general idea of the principles of perspective may be readily obtained by considering the plane on which any representation is to be made as transparent, and interposed between the eye of the spectator and the object to be depicted: a window, for example, will well answer the purpose. Supposing a person, then, to look through an upright pane of glass at any object beyond it, and keeping his head steady, that he draws the figure of the object upon the glass with a black-lead pencil, as if the point of the pencil touched the object itself; he would have a true representation of the object as it appears to the eye.

Other details are, however, involved in a satisfactory passing through the process which has been thus summarily described. The glass should be laid over with strong gum-water, which, when dry, will be fit for drawing upon, and will retain the traces of the pencil; and the draughtsman should look through a small hole in a thin plate of metal, fixed about a foot from the glass, between it and his eye, and he must also keep his eye close to the hole, lest he should shift the position of his head and make a false delineation of the object.

Still further: having traced the figure or outline of the object, he may go over it again with pen and ink, and when the ink is dry, put a sheet of paper upon it, and trace it thereon with a pencil; then taking away the paper, and laying it upon a table, he may finish the picture, by giving it the colours, lights, and shades, as he sees them in the object itself. In any such case the person has obtained the perspective of the objects which his view embraced; it is that which is called a *perspective plane*. From such circumstances the word perspective is derived. It is formed of two Latin words, *spectus*, a sight, and *per*, through, and means therefore, literally, "a sight through."

The *horizontal plane* is that which is parallel to the horizon, or not inclined to it; in perspective it is a plane parallel to the horizon, passing through the eye, and cutting the perspective plane at right angles.

The *horizontal line* is a straight line drawn through the principal point parallel to the horizon; or it is the intersection of the horizontal and perspective planes. If the objects are to be represented as being *below* the eye, the horizontal line must be above them; and if they are to be represented as being *above* the eye, the horizontal line must be below them. Were a representation to be made of London as seen from the top of St. Paul's, for example, the horizontal line must be higher than any of the buildings; if, on the other hand, St. Paul's, which is said to be 404 feet above the ground, were to be represented as it would appear to a person standing on the ground, about 399 feet would have to be placed above the horizontal line, and only five feet below it.

The *measures* of all base lines in the plane of the perspective are the same—that is, they are measured by the same scale, whether that be the natural size, or greater or less; and objects behind them are diminished in proportion to their distances.

The *natural size* depends on the distance of the point of sight from the centre of the picture; if that is small, the natural size of the objects will be greater than if it is large, as the nearer any object is to the eye, the larger is the *visual angle*.

The *size* of an object will be reduced to half of what it would have been, if on a base line or on the plane of the perspective, when it is as far behind that plane as the distance of the eye. Thus, were a man six feet high at the distance of twelve feet, the eye being on the same height as the centre of the body, a visual angle would be formed of rather more than 28°. At the distance of a mile, the comparative height of the same man would be less than two-tenths of an inch, and at two miles distance less than one-tenth. Perspective is divided into two branches, *linear* and *aerial*. Linear perspective has reference to the position, form, magnitude, &c., of the several lines.

The *line of distance* is a straight line drawn from the eye to the principal point of the plane.

The *point of view or of sight* is the place of the eye whence the object is viewed, and is always in the horizontal line.

The *vanishing point* is that to which all parallel lines in the same plane tend in the representation.

The *point of distance* is the distance of the picture, transferred upon the vanishing line from the centre, or from the point where the principal ray meets it, whence it is generally understood to be on the vanishing line of the horizon.

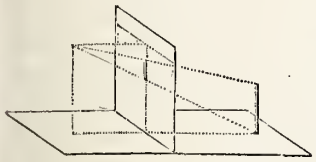
The outlines of such objects as buildings, machinery, and most works of human labour which consist of geometrical forms, or which can be reduced to them, may be most accurately obtained by the rules of *linear perspective*, since the intersection with an interposed plane of the rays of light proceeding from every point of such objects may be obtained by the principles of geometry. Linear perspective includes various kinds of projections. *Aerial perspective* teaches how to give due diminution to the strength of light, shade, and colours of objects, according to their distances

and the quantity of light falling upon them, and to the medium through which they are seen.

A *perspective plane* is the surface on which the object or picture is delineated, or it is the transparent surface or plane through which we suppose objects to be viewed; it is also termed the *plane of projection* and the *plane of the picture*.

The perspective of a plane surface parallel to the plane of the picture changes neither its form nor direction. The perspective of a straight line remains straight. Straight lines parallel to the plane of the picture remain parallel to themselves in perspective.

Fig. 1.



The appearance of a vertical line is a line greatly vertical (fig. 1). Lines perpendicular to the plane of the picture all meet on the point of sight situated on the horizon, for these lines are in planes perpendicular to that of the picture; the point of sight in the picture is the intersection of all these planes, and consequently of all these lines with the horizontal line. All these lines being perpendicular to the same plane (see the figure), are parallel to one another.

All the lines which are found in planes, horizontal or vertical, and differently inclined as regards the plane of the picture, all tend to meet at points situated on the horizontal line; the meeting of these lines with the horizon determines these vanishing points. As an application of the principle, find the perspective of a point P, situated on the horizontal plane (fig. 2). O is the point of sight, D the point of distance; T T′ the drawing of the picture on this plane; if we draw it around this line without shifting it, the lines would be confused; to obviate this, let us have the picture shifted to M N before drawing it. If through the point P, the two lines P A, P B be drawn, the perspective of these lines being A′ O, B′ D, the perspective of the point will be at their intersection P′. It may happen that the eye may be placed so far from the picture as that the point of distance will be outside the paper on which it is proposed to make the drawing; then we must lay down on the picture from O to D only a fraction of the distance of the eye, say a third or a fourth part: and then in the drawing we must lay down only a corresponding fraction of the distance of the point from the picture. Thus, to determine the point P′, if we have taken the half of O D, we must take only the half of P.

Fig. 2.

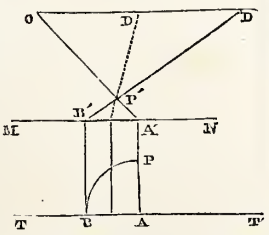
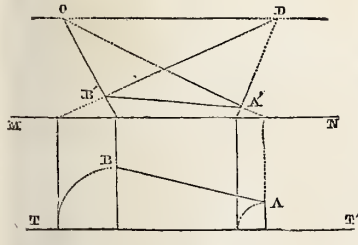


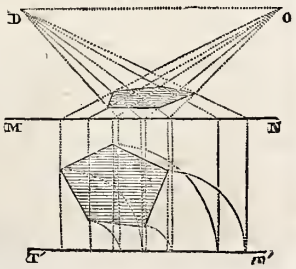
Fig. 3.



This problem necessarily helps us to find the perspective of any straight line whatsoever, drawn on a horizontal plane, for it is sufficient to find the perspective of two points on this line (fig. 3).

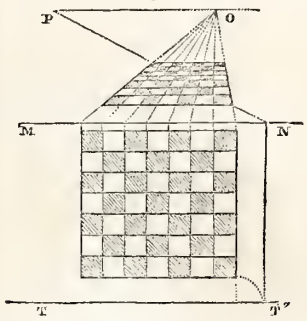
In short, it follows from this principle, that in order to put in perspective any polygon whatsoever, drawn on a horizontal plane, it will be sufficient to determine the perspectives of the vertices, and join them by straight lines (fig. 4).

Fig. 4.



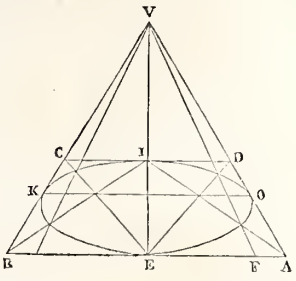
When the figures are regular, the operation may be shortened. Divide M N into as many parts as there are squares; join these points of division with the point O, the point of sight; draw the diagonal, P N, and through the points of intersection draw parallels (fig. 5).

Fig. 5.



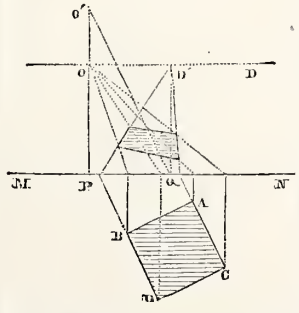
To describe a perspective circle in a perspective square, one of the sides of which is parallel to the plane of the picture. Among the numerous means which exist for solving this problem, we would point out one which is the most expeditious (fig. 6).

Fig. 6.



The perspective square is A B C D; the side A B is parallel to the plane of the picture; the point V is the point of sight. Divide A B into two parts A E, E B. Join the points E and V, and through the intersection of D C with E F at the point I, draw the diagonals I A, E D; through the intersection of these diagonals draw O K parallel to A B. These two lines, I E, O K, are the two diameters of the perspective circle. Divide A E into five equal parts, and join the points F and V. This line, V F, meets the diagonals A I, D E: the circle must pass through these two new points. By repeating the same operation on the sides I E, B C, we obtain eight points, which are always sufficient for the drawing of a circle. This figure is called an ellipse.

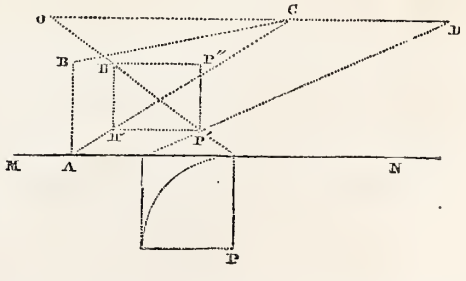
Fig. 7.



To find the vanishing point of any series of horizontal parallel straight lines (fig. 7). Through the point of sight, O, draw the vertical straight line O P and the line P O′ equal to O D, D being the point of distance. Through the point O′, draw O′ Q parallel to A C; through the point Q, draw the vertical straight line Q D′, the point D′ will be the vanishing point of the lines A C, B D, and of all others parallel to them. This very simple problem is one of the most important. We therefore advise the pupil frequently to repeat it, and to render it perfectly familiar to his mind.

To find the perspective of a given point in space (fig. 8). This point being determined by the horizontal projection of a part,

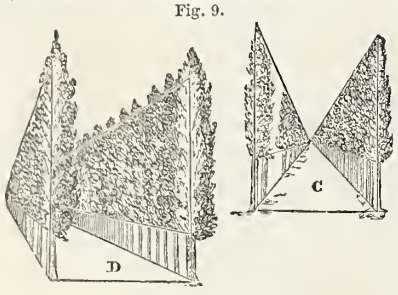
Fig. 8.



we can directly find the perspective of this projection. Let P be this point. From any point A draw the perpendicular A B equal to the height below its projection, and draw the lines A C, B C; C being a point taken at pleasure on the horizontal line O D; through the point P′ draw the horizontal line P′ H′; through the point H′ draw H H′ perpendicular, and H P″ horizontal; the perspective sought, P″, will be the point of meeting of the lines P P and H P″.

It will be easy to find by the aid of the problems now given the perspective of any object whatsoever. The lines of construction and the projection should be effaced, so as to leave only the perspective (fig. 9). The inspection of the subjoined figures C D will suffice to enable any one to understand the solution of the problem without the need of giving explanations. It must not be forgotten that in all these constructions, the eye is in front of the picture, and the object behind.

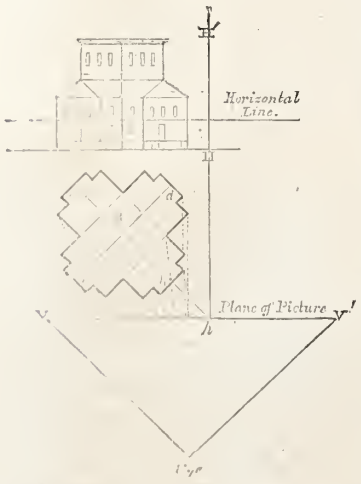
Fig. 9.



Distances between the eye and the object are, of course, arbitrary, as has been already remarked. It must, however, be noticed that the angle of distinct vision is between about 50° and 80°. This condition limits the nearest of the objects which can be represented; if they are too far off, the details escape the eye.

That the reader may have a general notion of the common mode of proceeding in the perspective representation of buildings we give the following diagrams :—

Fig. 10.



B is the plan of a building to be thrown into perspective, inclined to the plane of the picture at any angle, *v h a*. The vanishing points of all lines parallel to *a b* are found by a line from the eye parallel to *a b*, cutting the picture in v. Similarly, v is found to be the vanishing point of all lines parallel to *c d*. If *a b* be continued to *h*, it gives the place of the line H H, whereon the heights of the different parts of the elevation A may be set according to their several altitudes. The place of the horizontal line is chosen so as to afford the most agreeable representation of the object, its height depending, of course, on that at which the eye would most probably be placed, or might be supposed to be. The visual rays to the eyes are shown by the dotted lines.

Having thus prepared the geometrical plan and elevation of the object, the plane of the picture is set out as in fig. 11, and the

Fig. 11.



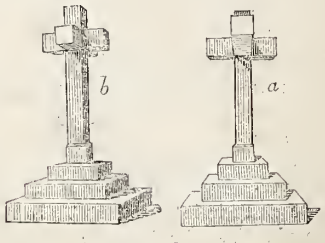
reader must observe that the whole extent of it, horizontally, must not take in an angle of more than sixty degrees, that being as great as the eye can take in without turning the head, though in internal views a greater extent is tolerated. It is to be observed that in this diagram the representation, for the sake of greater distinctness, is doubled in dimensions from the plan The place of H H′ is transferred to the picture, and the height carried down from it to the vertical lines, whose places have been found by the visual rays above mentioned. The vanishing points, v and v′, are transferred to the horizontal line v v′, and the horizontal lines in the sides tend thereto. It is obvious that a similar process enables the draftsman to make internal representations, the principles whereon they are conducted being precisely the same. It is needless to expatiate on the importance of perspective to the painter; and though Fresnoy has advised that "the compasses should be rather in his eyes than in his hands," it is clear that, without a knowledge of its laws, he can never hope to succeed.

Aerial perspective is the relative apparent recession of objects from the fore-ground, owing to the quantity of air interposed between them and the spectator, and must accompany the recession of the perspective lines. The best and only guide to this branch of art is the careful and constant study of nature.

An excellent exercise, recommended to beginners, is to draw a landscape or a piece of ornament, using only three tints. The strongest, which must be placed first, determines the shades; the second must be weaker, that denominated half-tint serves to bring out the lights and the shades; and the third, the weakest, will show the colouring of the objects in the light. There is no drawing which cannot be executed; no effect which cannot be produced, by means of these three tints.

Parallel perspective (fig. 12 *a*) is where the picture is supposed to be so situated as to be parallel to the side of the principal object in the picture; as a building, for instance. *Oblique perspective* (fig. 12 *b*) is where the plane of the picture is supposed to stand oblique to the sides of the object represented; in which case the representations of the lines upon those sides will not be parallel among themselves, but will tend towards their vanishing point. Oblique perspective is generally much to be preferred when attainable, for any view, it being essentially more picturesque, as may be seen by referring to the accompanying diagram.

Fig. 12 *b*. Fig. 12 *a*.



Isometrical perspective yet (fig. 13) remains to be noticed. It is founded on the *orthographic* projection of the sphere, in which the eye is supposed to be at an infinite distance; so called because the perpendiculars from any point of the sphere will all fall in the common intersection of the sphere with the plane of the projection; or it may be defined to be that projection which is made by drawing lines from every point, to be projected perpendicular to the plane of projection. Orthographic projections of the sphere are usually made either on the plane of the equator, or on the plane of a meridian. The plans and sections by which artificers execute their work are orthographic projections of the things to be constructed.

On these principles, isometrical perspective was invented by Professor Farish, of Cambridge, by which solids, of the form of rectangular parallelopipeds, or such as are reducible to this form, can be represented with their three pair of planes in one figure, which gives a more intelligible idea of their form than can be done by a separate plan and elevation. At the same time, this method admits of their dimensions being measured by a scale as directly as by the usual mode of delineation. As applied to marking, it gives the elevation and ground plan in one view. It is considered, for such purposes, to be preferable to the methods in common use, as it is easier and simpler in its application.

Fig. 13.



THE FLOWER GIRL.



FROM A PAINTING BY MURILLO, IN THE DULWICH GALLERY.

Besides those more intricate compositions in which a great variety of objects are brought into harmonious combination, most of the great artists have left behind some works which were produced with no other intention than to preserve the aspect of simple scenes in nature, or a striking physiognomy. The sketch is taken on the spot, and without premeditation, just as authors note down in their memorandum-books a thought which is suggested to their minds by some passing incident. It is doubtless to something of this sort that we owe the "Moorish Flower Girl," by Murillo. Perhaps the artist met the original by accident at the gate of some of those old Spanish houses in which her ancestors once dwelt, or on the deck of a Tunisian or Tripolitan galley anchored on the Spanish coast, or amongst some strolling band of Gitanos. At the first glance the strange character of the figure would have struck him: the gay and joyous expression of the face, the graceful folding of the turban, and the white rose with which it is adorned.

Of Murillo himself, and the general character of his works, we have already spoken when, on a former occasion, the "Ecce Homo," a painting by Titian, was by mistake ascribed to him.

THE WEATHER FORETOLD BY OBSERVING THE HABITS OF SPIDERS.

Quatremer Disjonval, a Frenchman by birth, was adjutant-general in Holland, and took an active part on the side of the Dutch patriots when they revolted against the Stadtholder. On the arrival of the Prussian army, under the Duke of Brunswick, he was immediately taken, tried, and having been condemned to twenty-five years' imprisonment, was incarcerated in a dungeon at Utrecht, where he remained eight years. Spiders, which are the constant, and frequently the sole companions of the unhappy inmates of such places, were almost the only living objects which Disjonval saw in the prison of Utrecht. Partly to beguile the tedious monotony of his life, and partly from a taste which he had imbibed for natural history, he began to seek employment, and eventually found amusement in watching the habits and movements of his tiny fellow-prisoners. He soon remarked that certain actions of the spiders were intimately connected with approaching changes in the weather. A violent pain on one side of his head, to which he was subject at such times, had first drawn his attention to the connexion between such changes and corresponding movements among the spiders. For instance, he remarked that those spiders which spun a large web in a wheel-like form invariably withdrew from his cell when he had his bad head-ache; and that these two signs, namely, the pain in his head and the disappearance of the spiders, were as invariably followed by very severe weather. So often as his headache attacked him, so regularly did the spiders disappear, and then rain and north-east winds prevailed for several days. As the spiders began to show themselves again in their webs, and display their usual activity, so did his pains gradually leave him until he got well and the fine weather returned. Further observations confirmed him in believing these spiders to be in the highest degree sensitive of approaching changes in the atmosphere, and that their retirement and reappearance, their weaving and general habits, were so intimately connected with changes in the weather, that he concluded they were of all things best fitted to give accurate intimation when severe weather might be expected. In short, Disjonval pursued these inquiries and observations with so much industry and intelligence, that by remarking the habits of his spiders, he was at length enabled to prognosticate the approach of severe weather from ten to fourteen days before it set in, which is proved by the following fact, which led to his release.

When the troops of the French republic overran Holland in the winter of 1794, and kept pushing forward over the ice, a sudden and unexpected thaw, in the early part of the month of December, threatened the destruction of the whole army unless it was instantly withdrawn. The French generals were thinking seriously of accepting a sum offered by the Dutch, and withdrawing their troops, when Disjonval, who hoped that the success of the republican army might lead to his release, used every exertion, and at length succeeded in getting a letter conveyed to the French general in January, 1795, in which he pledged himself, from the peculiar actions of the spiders, of whose movements he was now enabled to judge with perfect accuracy, that within fourteen days there would commence a most severe frost, which would make the French masters of all the rivers, and afford them sufficient time to complete and make sure of the conquest they had commenced, before it should be followed by a thaw. The commander of the French forces believed his prognostication, and persevered. The cold weather, which Disjonval had announced, made its appearance in twelve days, and with such intensity, that the ice over the rivers and canals became capable of bearing the heaviest artillery.

On the 28th of January, 1795, the French army entered Utrecht in triumph, and Quatremer Disjonval, who had watched the habits of his spiders with so much intelligence and success, was, as a reward for his ingenuity, released from his lengthened incarceration in the prison of Utrecht.

This anecdote of the habits of spiders, ascertained during an imprisonment, will be associated in the mind of the reader with one having reference to the perseverance of these insects, as recorded in the eventful life of the celebrated Bruce.

CLEOPATRA.

The position of Egypt during the two centuries preceding the birth of Christ, strikingly resembles that of the East Indies since the victories of Clive placed it at the disposal of the Company. It is not many years since the British dominions occupied but a tithe of that great continent; but ever since the days of Hastings, the native princes, far and near, have held their crowns as the vassals and nominees of the Council at Calcutta. The Governor-General has been the sovereign arbiter in all cases of disputed succession and contested rights; to him it belongs to set up and cast down. It is to him that the lawful heir looks for the restoration of his inheritance, and the punishment of the usurper. The will of the English is the highest law known to the Hindoo; the English parliament is the final court of appeal; and the soldiers who put its decisions into force are invincible by native arms or native valour. Over that vast empire, from the sunny waters of the Indian seas to the cold mountains of the north, the Feringhee rules by the might of discipline, science, civilisation, and the prestige of victory.

And thus did Rome rule the ancient world. The nations of the earth one by one fell before her. The Macedonian phalanx, the arrows of the Parthians, and rude valour of the Gauls, availed nothing against the triple line of the legionary armies. But her success in the acquisition of territorial power was not greater than her skill in retaining it. What she conquered she invariably subdued, not by the modern method of armed terror, but by the civilising influences of her law, her language, and her manners. Her system of jurisprudence, rude in its origin, but symmetrical and scientific in its growth and formation beyond all parallel before or since, was found equally well adapted to the wants of foreign nations, and inspired a feeling of confidence and security wherever it prevailed. Rival claimants of great kingdoms were content to submit their controversy to the decision of the Roman people, and have their cause argued by the great orators of the day. If the shameless corruption which called forth the memorable exclamation of Jugurtha,* sometimes turned justice from its course, we are to ascribe the perversion to the laxness of heathen morality, and not to any defect in the great and, as time has shown, immutable principles of their law. In a very early stage of her history, Rome appears to have considered herself commissioned by the gods to cast down the mighty ones of the earth, and establish all over the world the reign of a power to which kings should submit. No prince was allowed to proclaim himself independent of the Roman people. To be their ally was an honour bestowed upon few; and to be their vassal and nominee was a degradation to which many were forced to submit. The meanest citizen was of right considered good enough to set his foot upon the neck of the proudest potentate; and many centuries had elapsed before a Roman knight sullied his escutcheon by a family alliance with a barbarian monarch. From this inflexible rule of submission, the past glories of Egypt, attested by so many monuments, mightier and more numerous by far in the days of the Cæsars than now, could not save her.

Sixty-five years before the birth of Christ, a king named Ptolemy Auletes, or Ptolemy, *the Flute Player*, a man of royal blood but illegitimate birth, ascended the throne. He was called to it by the voice of the people, who had expelled his predecessor Alexander for his cruelties. The latter took refuge in Tyre, where he died sometime after without issue; but as if determined to disturb his successor's reign, in his will he bequeathed his dominions to the Roman people. This, of course, afforded the latter a ground for driving Ptolemy from the throne. But some years elapsed before they turned their attention to the new legacy. In the interval Ptolemy was not without his fears and misgivings. His skill in playing on the flute, by which he had often won prizes at the games, drew upon him the contempt both of the Romans and of his own people. So slight an accomplishment was considered unworthy the ruler of a kingdom: and what was more important still, the will of his successor had given the appearance of justice to the

* "O, urbem venalem, et mature perituram, si emptorem inveneris."

pretensions, and it might be the attacks, of the mightiest nation on the globe. He tried for a long time in vain to conciliate the senate, and secure their recognition of his government.

The election of Julius Cæsar to the consulship at last opened a path for the accomplishment of the design he had in view. Cæsar was deeply in debt, and finding that Ptolemy was disposed to purchase the influence which his office gave him, a bargain was at once struck. He received an immense sum of money, and in return was successful in having the Egyptian king publicly proclaimed the friend and ally of the Roman people. The favour was, however, dearly bought. The sum which he promised amounted to sixty thousand talents, or nearly £900,000 sterling, and in order to raise it, he was obliged to tax the people so heavily that they rose in rebellion and expelled him from the kingdom. Into the intrigues, and plots, and bribery, and corruption, which he employed to procure his restoration, want of space will not permit us to enter. It will suffice to say that by a series of efforts, unparalleled in the annals of fraud and villany, he was reinstated by the senate, and died in the peaceable possession of his kingdom. He left two sons and two daughters, and to the eldest son and daughter he bequeathed the crown, directing that, according to a practice by no means uncommon in Egypt, they should marry together, and should reign jointly. The daughter was at this time but seventeen, and she was the elder of the two; and on account of their youth he left them under the guardianship of the Roman senate. The queen was the celebrated and unfortunate Cleopatra, whose life is one of those strange and thrilling romances which lie scattered here and there through the pages of history, startling, but not always impressing us by the terrible vividness with which they paint the vanity of human greatness, and the certainty of the retribution which awaits all wickedness, no matter what may be the rank of the criminal, or how alluring the refinement of the vice.

No sooner had Cleopatra ascended the throne than her husband and brother began to intrigue with some of his ministers to deprive her of her rights. They were so far successful that she was obliged to fly from the palace and take refuge in Syria. She soon collected an army, and was preparing to assert her claims by force of arms, when a message from Cæsar put a stop to the preparations on both sides. This great commander had a short time previously defeated his rival Pompey at the famous battle of Pharsalia, and now sailed in pursuit of him to Egypt. Upon his arrival, he ordered Cleopatra and Ptolemy her brother, to submit their claims to his arbitration. Each party immediately appointed representatives to plead its cause before the consul. Ptolemy's army was encamped before Pelusium, and Cleopatra was preparing to return from Syria; but before setting out she formed a resolution which places her character and talents in a striking light, and decided her fate. She wisely perceived that her presence must avail more with the Roman general than the most powerful pleading of the most eloquent advocate. She was now twenty years of age, and in possession of all the charms of figure and face which can inspire love and admiration, and all the graces of manner which strengthen and retain them. She had all the voluptuous warmth of expression and features which are said to be peculiar to the East, and which invariably surprise and overpower men from the colder climates of the north. Her voice, historians tell us, surpassed the lyre in sweetness and cadence, and she displayed the exquisiteness of her tone and her skill in its management, not in her own language merely, for she was mistress of several. She was familiar with the literature and philosophy of the day, and could converse with fascinating ease and brilliancy upon all topics, whether grave or gay, lively or severe, passing without difficulty from the beauties of art to the mysteries of science or the intricacies of politics, but ever recurring with a partiality which may be readily excused, to the trifling but persuasive blandishments of love. She seemed made to charm men's eyes and to subdue their hearts. Never were Beauty and Valour so well represented as in the interview between the queen and the consul.

That interview was strangely brought about. Cleopatra, with but one attendant, caused herself to be rowed in a small boat in the darkness of the night under the walls of the citadel of Alexandria. But here a difficulty presented itself. How was she to gain admittance at so unseasonable an hour? She bethought of a stratagem which answered her purpose. Laying herself at length in a bundle of clothes, Apollodorus, her attendant, tied her up in them, and carried her through the gate and into Cæsar's private apartment as a parcel. Loosening the tie, Cleopatra arose and stood before him. The iron soldier, who tramped unmoved through the fierce excitement of a hundred stubborn battles, was "quite vanquished." The light of her eye struck deeper than even the dagger of Brutus, and he yielded himself captive. We are not told whether they on that night deliberated on the state of the nations, or sought to reconcile by deep laid plans and strokes of state policy the conflicting claims of the two great parties who divided the kingdom between them. But we neither outrage probability nor turn aside from historical accuracy if we assume that Cæsar forgot all graver cares and deeper thoughts in the fascinating society of the queen. She had a son named Cæsarion, after his father.

The next day Cæsar summoned a meeting of the citizens and the king, and proposed to them to place things in the same position as before the quarrel, by leaving Cleopatra and her brother on the throne. Although Ptolemy's adherents gave an apparent assent to this proposal, they feared that they had gone too far against the queen ever to hope for forgiveness, and that, if she were once restored to power, she would inflict upon them condign punishment. No sooner, therefore, had the assembly broken up, than hostilities were resumed, and Ptolemy was for a long time infatuated enough to hope that he would be able finally to expel the Romans from the country. But he paid for his presumption with his life. The conqueror of Pharsalia was not to be baffled at the head of his victorious legions by an army of slaves, led on by eunuchs and a boy. The Egyptians were defeated in a great number of battles, and at last the unfortunate Ptolemy, flying from a severe defeat, was drowned while attempting, in terror and confusion, to cross a rapid river. He was in the eighteenth year of his age, and had reigned for three years and eight months. Under better guidance he might have been a wise monarch, and enjoyed a longer and more prosperous reign.

Cæsar now placed Cleopatra on the throne, and associated with her in the government her youngest brother, a child of eleven years, and placed three Roman legions at her disposal. Now that all was peace and tranquillity, there was nothing further to detain Cæsar in Egypt; but he was unable to leave Cleopatra, and during the ensuing nine months remained constantly in her society. The court during this period was a scene of unheard-of gaiety, frivolity, and extravagance. Whole nights were passed in feasting, dancing, and music. At last he tore himself away to enter upon a career of conquest in Asia, and saw her no more. Upon his return to Rome he was assassinated.

During an interval of nearly six years Cleopatra reigned undisturbed. When her brother came of age she poisoned him, and took the government into her own hands. When the battle of Philippi had thrown the empire of the world into the hands of the triumvirate, she was summoned by Antony to give an account of her conduct, and it was generally understood that he intended to find some excuse for subjecting her kingdom to tribute. She determined to subdue him with the same weapons which had vanquished a mightier than he. She was still in the bloom of her beauty; and now added the art of womanhood to the charms of youth. She went to meet him on the river Cydnus in a style of gorgeous magnificence.

> "The barge she sat in, like a burnished throne
> Burned on the water; the poop was beaten gold;
> Purple the sails, and so perfumed that
> The winds were lovesick with them; the oars were silver;
> Which to the tune of flutes kept stroke, and made
> The waters which they beat, to follow faster,
> As amorous of their strokes. For her own person
> It beggared all description; she did lie
> In her pavilion (cloth of gold, of tissue),
> O'er picturing that Venus, where we see

> The fancy outwork nature; on each side her
> Stood pretty dimpled boys, like smiling cupids,
> With divers coloured fans, whose wind did seem
> To glow the delicate cheeks which they did cool,
> And what they undid, did."

Antony fell into her toils, forgot his present interests and his past glory, and surrendered himself a prey to all the enervating influences of eastern effeminacy. Softly languishing in the arms of love, he suffered the affections of the soldiery, and all the other advantages which he had acquired by a life of toil and danger, to pass from him. The machinations of his rivals (for Octavius already aspired to the supreme power) were suffered to go on unchecked, and he only awoke from his inglorious ease to find himself gliding to ruin. The battle of Actium decided the fall of the empire, and left him at the mercy of the conqueror. A few more vain attempts and he found himself deserted and betrayed by all. Cleopatra had shut herself up with her treasure in a strong tower, which appears to have been intended for a royal sepulchre, and caused a report to be spread that she had put herself to death. It came to the ears of Antony. No less unhappy in his love than his ambition, he resolved to follow her example, and called upon his freedman to run him through the body. The faithful follower, to avoid the dreadful task, turned his weapon against himself, and inflicted a mortal wound. Antony snatched the sword from the wound, and plunged it into his own breast. While weltering in his blood, and writhing in the agonies of death, the news was brought him that Cleopatra still lived. He faltered out a request that he might be carried into her tower, that he might gaze once more upon the matchless form of the syren who had lured him to his doom. The last interview between the unhappy lovers is said to have been affecting in the extreme. Cleopatra wept and tore her hair in the anguish of despair, avowing her intention to follow him speedily to the Elysian fields; and Antony's dying moments seemed soothed by the consciousness that whatever doubts he might previously have had of her faithfulness, in his last and worst peril she still loved him.

Soon after this she had an interview with Octavius, whom she received in the midst of the pomp and splendour of decoration which she knew so well how to assume. The meeting was short and cold, but she learned from it that it was his intention to take her to Rome, to form part of his triumphal procession. This was an indignity which her proud spirit could never brook. Finding that her charms found no favour in the eyes of the cold and politic general, she lost hope and resolved to die. Applying an asp to her breast, the subtle poison of the serpent was soon diffused through her veins, and she died as she had lived, vain, fickle, ambitious, and deceitful. The guards who were sent to seize her found her on a golden couch, dressed in royal robes, and one of her female slaves dead and the other dying at her feet. She was buried with great pomp in the tomb with Antony. They had lived together in infatuation, and it was but fitting that in death they should not be divided.

Cleopatra's abilities were, after all, purely feminine. She had all the vices and follies of a woman, without any of the talents of a great ruler. Her political ends were accomplished by perfidy and cruelty. Those who loved her she ruined. Cæsar escaped from her toils by a strong effort; but Antony less resolute, less energetic, and more wavering, drank the cup of folly to the dregs, and paid the forfeit of disappointed hope and an untimely end. The whole story is full of instruction and to us, in these more blessed days, it conveys a striking picture of the fearful moral darkness of the ancient world ere the Sun of Righteousness had arisen with healing in his wings.



DISEMBARKMENT OF CLEOPATRA, AFTER CLAUDE LORRAINE.

Claude Lorraine, the prince of landscape painters, to whom sun and sky, wood and water, calm and tempest, come alike, and glorious and all beautiful, has lent the aid of his magic pencil to commemorate one of the greatest triumphs of the Egyptian queen, when, in the zenith of her pomp, and pride, and beauty she went forth to conquer another of the Romans. The moment chosen is that of her leaving the gorgeous galley in which she had descended the Cydnus to meet the triumvir in the market-place.

KIRKSTALL ABBEY (YORKSHIRE.)

Kirkstall Abbey belonged to the order of Benedictine monks, and was founded in 1157 by Henry de Lacy, a Norman knight, on the banks of the Aire, in one of those picturesque situations which are so numerous in the wild and diversified scenery of Yorkshire. The "Fathers" seem to have had a keen eye for the beautiful, as well as a keen appreciation of creature comforts, for if report speaks truly, they knew the flavour of good wine, and could pronounce upon the merits of a cook as men having authority in such matters. But, eschewing all scandal and gossip, we think those old friars have, with all their faults, deserved well of their country in having kept alive the love of art, and having bequeathed to later generations legacies so rich in beauty and so full of historic reminiscences as the thousand hoary ruins that are scattered over the length and breadth of the United Kingdom. Light may the turf rest upon their bones! They did well, when wearied with the "toils and fardels" of life, to choose a spot blessed in sun and soil and station, in which to end their quiet lives in peace and obscurity. Can we blame them, if when disgusted with the hideous moral aspect of the dark ages they turned more fondly to nature, ever beautiful and ever new, and took care that nought around their peaceful abode should remind them by its harshness or deformity of the crimes and follies of the great world without? Be this as it may, this much is certain, that seldom is an abbey found where the eye of an artist would not love to dwell upon the surrounding scenery. It is needless to cite instances in support of our position. Many of our readers have doubtless gazed in rapture upon the ruined walls of "fair Melrose," and doubtless some by moonlight; fewer perhaps (but let us hope the number is increasing), have wandered through the Seven Churches in the secluded valley of Glendalough;—

> "By the lake whose gloomy shore,
> Skylark never warbles o'er;"

and others may perhaps have penetrated to the shady beauties of "sweet Innisfallen," which no visitor ever left without heartily echoing the sentiment of the departed poet—

> "How fair thou art let others tell,
> To *feel* how fair shall long be mine!"

These abbeys too have still another claim upon our interest. Throughout the British islands they were for many a year the only refuge of the conquered and oppressed race. Once within the convent gate, the cowl and the monastic vows removed the stain of Saxon blood and stayed the violence of the Norman soldier. Oh, how many weary hearts, pining for loss of home and kindred, mourning over a brother's or a father's murder, or a sister's unrevenged insult, sought peace, which the world could not give, within those grey old walls!



KIRKSTALL ABBEY, FROM A PAINTING BY TURNER.

What Nature had beautified, Religion took possession of, and sanctified and gathered into her quiet resting places the down-trodden and the conquered. The form in which the holiest and highest aspirations of our nature manifested themselves in those dark and troublous days were doubtless wanting in truth and light, but they were not on that account less beneficial; and we must all confess were wonderfully adapted to the wants of the times.

When the need of these asylums was gone, in England at least they fell and perished. Henry VIII. swept them all away, and Kirkstall Abbey amongst the rest; but there is enough of architectural beauty and historic interest still lingering around every one of them to well repay a visit.

Our engraving is taken from one of Turner's best paintings. Of the artist or his style we shall here say nothing, as we hope shortly to present our readers with a portrait of him; and a memoir is in preparation which will embrace all that can be said of his career and excellence in his profession.

HYDRODYNAMICS;

OR, THE APPLICATION OF WATER AS A PRIME MOVER OF MACHINES.

The term *Hydrodynamics* has been used by many good authors as synonymous with the term *hydraulics*. There is, however, a very considerable difference between them; and it is advisable, in the present advanced state of science, to render that difference subservient to the useful purpose of classification. The term *hydraulics*, in its original and strict meaning, signifies the theory and practice of the *motion of water through pipes;* and is generally applied to the art of raising water by mechanical means. The term *hydrodynamics*, on the other hand, strictly signifies *water-power*, and is generally and properly applied to the theory and practice of the *motion of water when used as a prime mover of machinery*. With the use of the latter term in its proper meaning and application the ancients appear to have been unacquainted; and, in fact, the science itself is almost entirely of modern origin. The machines in which water is employed as a prime mover, may be divided into two great classes: *first*, those in which the water acts only by its weight in producing an alternate vertical motion, or a continued rotary motion; and *second*, those in which the water acts both by its weight and its impulse, or produces a continued rotary motion in a wheel.

In the first class of machines are included those in which *water is balanced on a working beam* by a weight to be raised, or a mass of any kind to be put in motion. Thus, in fig. 1, a bucket is made to descend by the weight of water it contains, and to ascend by a counter-weight when emptied. The length of the descent, and, of course, the height to which a given weight may be raised, will correspond to the height of the reservoir which supplies the bucket with water above the level to which it descends and is emptied of its contents. The counter-weight may be attached to a pump-rod, and the force employed to raise the pump will then replace the weight to be raised by the weight of the water in the bucket. A machine similar to this was contrived by Mr. Sergeant, of Whitehaven, in 1801, and was erected at Irton Hall.

Fig. 1.

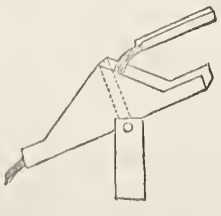


Fig. 2.



Again, fig. 2 represents a similar apparatus, with double action. In this machine, while one vessel is emptying itself another is being filled, so that both the ascent and descent of the buckets are rendered available for the production of motion. The alternate motion of the working beam, in this apparatus, may be employed directly in the working of pumps for the raising of water to an elevated level, or in the production of a prime mover for the operations of a manufactory, a mill, &c.

Fig. 3.

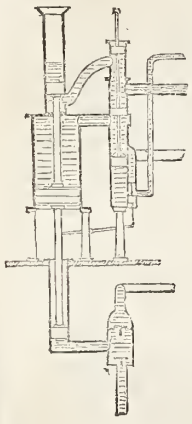


The simplest form of apparatus of the preceding description is represented in fig. 3, where the water falls alternately into one of two compartments into which the moveable reservoir or bucket is divided.

The apparatus exhibited in figs. 1 and 2, may be transformed into more convenient machines by lengthening the sides of the bucket to the height of the fall, or the difference between the upper and lower levels, rendering them fixed, and the bottom moveable, so as to move up and down in the interior like a piston in a cylinder. Machines of this description are not well adapted for low falls of water.

The construction of *water-pressure engines*, in which water presses on a piston instead of steam, and produces alternate vertical motion, is similar in principle to the preceding machines. The single water-pressure engine is represented in fig. 4,

Fig. 4.

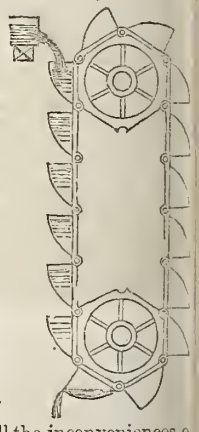


where a piston works in a cylinder, and by the action of a subsidiary piston, its interior face is alternately subjected to the pressure of a column of water contained in a tube, and relieved from that pressure. When the large piston has reached the top of its course, it is restored to its primitive position by a counter weight; whilst the water which filled the cylinder, or put the piston in motion, escapes freely into the lower reservoir.

The construction of the double *water-pressure engine* renders the counter weight unnecessary. The action of the subsidiary pistons put alternately the upper and lower faces of the large piston in communication with the column of water which is connected with the upper reservoir.

By placing the cylinder vertically in this machine — a plan adopted for facility of construction — there is a loss on the height of the fall equivalent to the length of the cylinder. But such machines are only employed in cases where the fall of the water is very considerable, and where this loss is, consequently, of small importance. The first idea of the water-pressure engine appears to be due to Belidor, who proposed it in 1739. About ten years afterwards it was first put in operation in the mines of Schemnitz, in Hungary. After a period of other thirty years, Reichenbach, a celebrated engineer, erected and employed eleven engines of this description in the raising of water from the salt-mines of Bavaria, in the Tyrolese Alps. One of them, that of Illsang, raised the water at a single jet to the height of 1,168 feet. In 1831, M. Juncker, a French engineer and director of the mines of Poullaouen and Huelgoat, in Brittany, executed, on the same principle, the largest and the finest hydraulic machine in France. For the details and the description of this machine, the reader is referred to the author's own account, in the *Annales des Mines*, tom. viii., 1835.

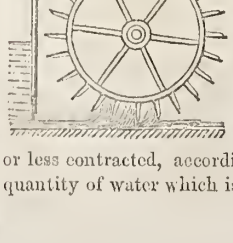
Fig. 5.



The machine called *Noria*, described under the head of *hydraulics*, being inverted as to the operation of the water, will become a hydrodynamical machine, as represented in fig. 5, where an endless chain, furnished with buckets, revolves on two drums placed vertically above each other, and communicates motion from either for any required purpose. The loss of power arising from friction and the rigidity of the chain is too great to admit of the useful application of this kind of machine, except in very peculiar situations.

The *inclined noria*, furnished with float-boards, and moving in a close mill-course, has also been proposed as a means of obtaining the application of water-power; but this arrangement has all the inconveniences of the preceding machine, without increasing any of its advantages.

Fig. 6.

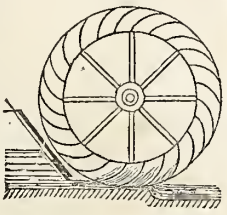


In the second class of machines consisting chiefly of water-wheels there are several varieties, which we proceed to describe in order. The simplest, and, probably, the most ancient species of water-mill, is that of the *undershot wheel*, represented in fig. 6, which acts by the impulse of the water on the under float-boards or vanes, and moves in a mill-course more or less contracted, according to the height of the fall and the quantity of water which is employed.

Experience has shown that, in order to produce the best working effect, the velocity of the float-boards of an undershot water-wheel should be only about four-tenths of the velocity of the stream, and that even then the useful effect is only about one-third of that which is due to the height of the fall. The float-boards must also be confined in a mill-course which exactly fits them, and of a depth sufficient to prevent the stream of water from passing under them without producing the greatest possible effect.

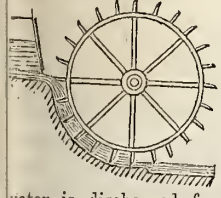
The facility with which an undershot wheel can be constructed in a low fall of water, and the small expense required for construction and repair, have induced some engineers of modern times to endeavour to improve this species of machine. Accordingly, M. Poncelet, in 1825, presented to the Institute of France a memoir concerning an improvement in the construction of undershot wheels, which nearly doubles their useful effect. This machine, which is represented in fig. 7, is composed of a wheel with circular float-boards, and a shrouding, like that of overshot-wheels, to prevent the escape of the water by their sides. The reservoir or trough which contains the head of water, and the channel or mill-course, are also constructed so that the vein or stream of water which issues from the aperture in the sluice shall strike the float-boards as near as possible to the place of the *vena contracta*, or point where the contraction of the jet takes place. This species of wheel is particularly useful in low falls of about five feet and under. The form of the curve, adapted to any particular fall and size of wheel, is easily determined by drawing a perpendicular from the surface of the water in the mill-course at the point where it is to meet the outer circumference of the wheel, and from the point where this perpendicular meets the inner circumference of the ring of shrouding, describing an arc of a circle between both circumferences, with a radius equal to its distance from the surface of the water, this will give the form and direction of the curve for each float-board round the wheel.

Fig. 7.



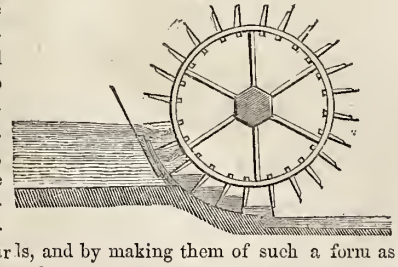
The next species of water-wheels are those called *breast-wheels*, in which the water is discharged at or nearly opposite the extremity of their horizontal diameters; and the mill-course is constructed in the circular form adapted to the size of the quadrant or arc of the wheel, which moves in it by joint effect of the impulse and the weight of the water on the float-boards. In the construction of breast-wheels, the water is allowed as little play as possible, so that its weight may have its due effect in that part of the fall which is abstracted from the whole height, in order to form the circular mill-course. Experiment has proved that the useful effect of such machines varies from four-tenths to five-ninths of that due to the whole height of the fall, and that it increases in proportion as the discharge of the water is taken nearer the level of the reservoir. Fig. 8 represents the breast-wheel, where the water is discharged from an aperture in the sluice exactly opposite the horizontal diameter of the wheel.

Fig. 8.



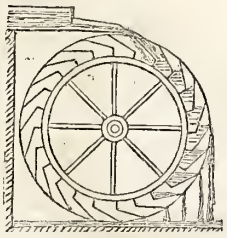
In cases where the *breast-wheel* receives the discharge of water on its float-boards over the top of the sluice instead of under it, as represented in fig. 9, it is said to possess very considerable advantages. These will, of course, be rendered more manifest by the application of shrouding to the float-boards, and by making them of such a form as to retain the water as long as possible before they reach the vertical position; or by making the circular mill-course of such a form that little or no water can escape at their sides, if they are constructed without shrouding. The useful effect of such machines is experimentally found to vary from three-fifths to three-fourths of that due to the height of the fall. They may be made to act with very different velocities without producing a useful effect differing sensibly from the maximum. They are chiefly advantageous for falls varying in height from 5 feet to 6 feet; for larger falls they are too heavy, because their radius must be at least equal to the height of the fall.

Fig. 9.



The most common and most valuable species of water-wheel is that denominated the *overshot wheel*, which in its simplest form is but the Persian wheel inverted; that is, having the water discharged into its buckets at the top, instead of being loaded with it at the bottom. By this means, the water acts by its weight during nearly the whole height or descent of the fall. In the ordinary construction of overshot wheels, the buckets are made of the form represented in fig. 10; being a series of float-boards bent at one-third of their radial distance between the inner and outer circumferences of the shrouding, at an angle varying from 110 deg. to 118 deg., according as the wheels vary from 13 feet to 40 feet in diameter. The shrouding, which consists of three rings of wood or metal, two flat, one being placed on each side of the series of float-boards, and one circular behind them, thus forming them into actual buckets, may be dispensed with, if there be abundance of water and a low fall; provided also the mill-course be circular and as contracted as possible. When there is little water and a high fall, then the use of buckets becomes indispensable. The useful effect of these machines may be generally estimated at four-fifths of that due to the head of water.

Fig. 10.



Besides friction, it is evident that there is a considerable loss of water from the buckets after they reach the position of the horizontal diameter of the wheel; and these causes alone will sufficiently account for the loss of one-fifth of the useful effect of the moving power. According to this estimate, it will be found that a reservoir which discharges 1,200 cubic feet of water per minute, on an overshot water-wheel, with a fall of 30 feet, produces a useful effect equivalent to that of a Boulton and Watt steam-engine of 54 horse-power. Of course, the useful effect of any other overshot water-wheel, where the discharge per minute and the height of the fall are given, may be calculated from this result by the rule of compound proportion.

Models of two overshot water-wheels, each of 140 horse-power, 40 feet in diameter, and 12 feet in breast, were exhibited in the Crystal Palace, by the Devonshire Great Consolidated Company; and are now deposited in the Museum of Practical Geology. These wheels pump the water from the mines of the company near Tavistock in the county of Devon, and are supplied by water brought from the river Tamar at the distance of two miles. The one works a set of pumps which discharges 60 gallons of water per stroke from a depth of 690 feet, and the other 98 gallons per stroke from a depth of 360 feet.

Horizontal water-wheels, with vertical axes, have also been employed as a means of transmitting water-power to machinery for useful purposes, especially on very limited falls; but they have been found generally to produce a useful effect which was only one-third of that due to the moving power. To machines of this description, differing from each other very considerably in the details of their construction, the French have given the general name of *Turbine;* but they are all constructed with a vertical axis, and float-boards, sometimes plane, but usually curved, which are put in motion by the action of a fluid vein or stream, which enters into their interior, and is discharged at their exterior circumference, or conversely. The useful effect of turbines was raised by M. Burdin, from one-third to about three-fourths of that due to the moving power, by adopting a construction proposed by M. Borda, and represented in fig. 11, in vertical and horizontal section.

(*Continued on page* 208.)

CURIOUS CUP IN NIELLO, PRESERVED IN THE BRITISH MUSEUM.



THE remarkable cup, of which we give an engraving, is traced to the fifteenth century. Its substance is silver; the base, the upper border of this cup, the lower border of the lid, the flower, and the statuette which surmounts it, are gilded. Its total height is about three feet. The figures with which it is adorned, appear to be entirely fanciful. For a long time it was the property of the noble family of Van Bekerhout, who made a present of it to the sculptor Calonia, who executed the statue of John Von Eyck which is in the Academy of Arts at Bruges. The widow of this artist sold it to a gentleman, Mr. Henry Farrer, who afterwards disposed of it to the British Museum for the sum of £350.

The manner of its execution is worthy of particular notice. In the fifteenth century, and even long before, it was the practice to decorate the church and other plate with works *in niello*, which were designs hatched with a steel point in gold or silver, then engraved with the burin, and run in while hot, with a composition called *niello*—an Italian term, derived from the Latin *nigellum*, from the compound of silver, lead, copper, sulphur, and borax, which was easily fusible, being of a black colour. The superfluous part of this niello which remained above the surface of the plate was then rubbed off with scrapers, and cleaned away with pumice-stone, leaving the engraved design on the plate, with all the effect of print.

Remarkable as this process was, there arose out of it another, incalculably more so. It became a practice for artists, who wished to preserve their designs, to take impressions of their plates with earth, over which liquid sulphur was poured, and from which, when cold, the earth was removed. But, Maso Finiguerra, a goldsmith and sculptor of Florence, and a pupil of the celebrated Masaccio, about the middle of the fifteenth century, carried the process still further, for with a mixture of soot and oil he filled the cavities of the engraving he had made, as a preparation for niello, and by pressing damp paper upon it with a roller, obtained impressions on the paper, having as Vasari says, "Venivano come disegnate di penna"—all the appearance of drawings done with a pen. Finiguerra was followed by Baccio Balderri, a goldsmith of Florence, who, according to Vasari, employed the eminent artist Sandro Botticelli, to design for him.

The arts are generally to be traced to a humble origin, and in these works in niello often discovering little taste, we recognise the cradle of that of engraving on *copper*, to which engraving on *steel* has within the last few years succeeded. In the earliest efforts of this kind, the lines produced were comparatively rude and unmeaning, and had nothing more to recommend them than their merely representing a particular sort of markings, or slight hatchings with a pen, without any apparent degree of execution or expression. It was not long, however, before this incipient art became indebted to the elegant etchings of the great masters in painting, as well as to their drawings in pen and ink. It acquired accuracy and taste from the drawings of Raffaelle, Michael Angelo, and Leonardo da Vinci, which connoisseurs of our own time have seen and admired. Some of those by Da Vinci were hatched in a square and delicate manner, with a white fluid on dark-coloured paper; while those of Michael Angelo and Raffaelle inclined more to the lozenge, in black or brown ink. They even carried this style of hatching with the pencil into their pictures, some of which adorn the Vatican, and into the famous cartoons, which are the glory of our own picture gallery at Hampton Court; and by the persevering application of the graver, the art has been advancing to the present period.

When compared with painting, it appears but of recent invention, being coeval only with the art of printing. Like it, it possesses the power of multiplying indefinitely, the productions of talent and genius, and in one respect its power is greater, for the *language* of engraving is universally known. It is for us to rejoice in the immense power that it now possesses, and to avoid the error pointed out by Lord Bacon when he said: "We are too prone to pass those ladders by which the arts are reared, and generally to reflect all the merit to the last new performer."

GROUP IN SCULPTURED SILVER.



This extraordinary work is a very successful imitation of some of those which appeared at the revival of art in the middle ages It was first exhibited at one of the Expositions at Paris, in 1849, and since, in 1850 and 1851, at the Palais Royal. On the first occasion it was not as much noticed as it has since been. The central jury appears to have fully appreciated its merits. Their

report may furnish some idea of the labour and difficulty attendant on its execution. It has been made after models of M. Jean Feuchère and under his direction, in chased silver, to the absolute exclusion of casting or any other of the processes heretofore usually employed. The silver has been moulded like clay or plaster, and the success of the attempt has been triumphant. No figures in high relief could be executed with greater boldness, and, at the same time, with greater chasteness. The whole group is composed of not less than forty separate pieces. Each of these was moulded separately, but of course from time to time compared and reduced into harmony and keeping with the others; and in this lay the great difficulty of the work. All the fingers are hollow, but each hand is composed of ten or twelve pieces. In labour requiring such delicacy and minuteness, of course a great deal in the chasing depends on a careful preparation of the metal by the goldsmith. The group is intended as an ornamental centre piece for a dinner-table. It represents the terrestrial globe girt round by the zodiacal band, and surmounted by figures of Ceres, Bacchus, and Venus. Ceres carries a sheaf of corn on her shoulder, and holds some heads of ripe poppies in her right hand. Bacchus carries the Thyrsus in his right hand, and a goblet in his left. Love is perched on the left shoulder of Venus, and her right hand is playing with the apple awarded her by Pans. Around the globe fly four little genii: one carries a lyre, another two torches, another the horn of plenty, and the fourth a bow and arrows. The earth is supported by four Titans, two male and two female torsos, each ending in the tail of a reptile. These rest on piles of rocks representing chaos, and personify the vices and disorders which reign in the world. The genii are figurative of the evils of war and the blessings of peace; and the three figures on the top symbolise the higher active principles of nature, pleasure, beauty, and utility.

The border of fruits and fields around the pedestal is executed with surprising delicacy, and would have done credit to Benvenuto Cellini.

SHADOWS.

Cowper, when describing his "Winter Morning Walk," and alluding to the sun, points out an effect which many of our readers have verified:—

> ——"His slanting ray
> Slides ineffectual down the snowy vale,
> And tinging all with his own rosy hue,
> From every herb and many a spiry blade
> Stretches a length of shadow o'er the field.
> Mine, spindling into longitude immense,
> In spite of gravity and sage remark,
> That I myself am but a fleeting shade,
> Provokes me to a smile. With eye askance
> I view the muscular-proportioned limbs
> Transformed to a lean shank. The shape less fair,
> As they designed to mock me, at my side
> Take step for step: and as I near approach
> The cottage, walk along the plastered wall,
> Preposterous sight! the legs without the man."

The present paper is intended to follow one on the "Elements of Design," and another on "Perspective," Shadows being regarded in connexion with them both.

To show forcibly to the reader the power of shading in giving *form* to objects, let us make three circles in a row (fig. 1), and underneath them three others of the same size. The introduction of shadows will now produce a startling effect. The first of the lower row becomes, by a little shading, a *rounded concavity*, the second a *circular indentation*, with a flat bottom; the third a *round ball*. When these are compared with their outlines above, the power of shadow will not fail to be appreciated.

Shadows are formed by an opaque body placed in the direction of a luminous ray. It may be said that the rays of light which emanate from the sun are parallel to one another, the sun being so far distant that it is impossible to appreciate their actual convergence.

As to the artificial light of a lamp, the rays being very short, their convergence is very sensible. It follows from hence that

Fig. 1.



the light of the sun changes very little the form of objects, whilst, on the contrary, artificial light sometimes produces strange forms.

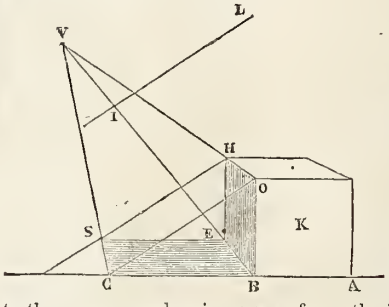
When the sun is in the horizon, the shadows are almost indefinitely extended. As it rises the shadows diminish in length, until, when it has reached 45°, the half of a right angle, the length of the shadows is equal to the light of the object which projects them.

Artificial light follows the same law as that just pointed out, with this difference—that the shadows increase as the light approaches the opaque body, and assume a conical form, the apex of the cone touching the luminous point.

After these explanations, the following rule is easily deduced: That the shadows of straight lines parallel to one another, and the perspective appearances of these shadows, meet in the same accidental points.

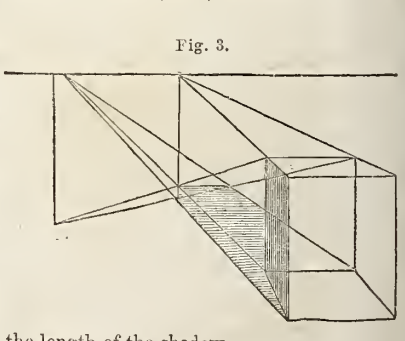
We will now give the solution of three most useful problems—when the light is in the plane of the picture, when it is behind it, and when it is in front of it:—

Fig. 2.



Suppose the sun in the plane of the picture (fig. 2): L I is the direction of one of its rays: to find the shadow produced by the opaque body K on a horizontal plane. The rays being parallel to one another through the points O H, draw geometrical parallels to the ray L I, prolonging A B as far as the intersection of the ray O C. From V draw the lines V C, V E, V H, B E. S C will be the shadow produced.

Fig. 3.

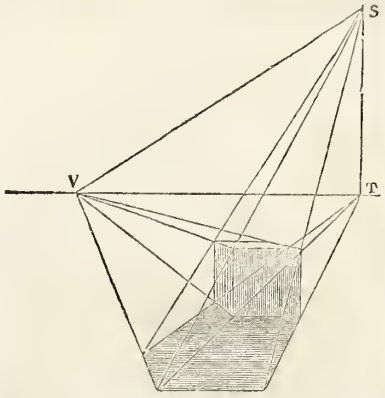


Then, when the sun is in the plane of the picture, the direction of the shadow of a vertical line on a horizontal ground is a line parallel to the horizon, and the ray passing through the extremity of this vertical line determines the length of the shadow.

The sun being behind the picture (fig. 3), the direction of the shadow of a vertical line has, as its vanishing point, the foot of the perpendicular, let fall from the centre of the sun on the horizontal line; and the luminous ray issuing from the same centre, and passing through the extremity of the vertical line, determines the length of the shadow.

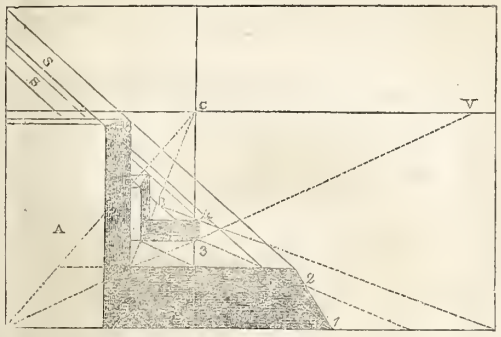
When the sun is behind the spectator, the operation is to be reversed (fig. 4).

Fig. 4.



The form and direction of shadows produced by the sun may also be shown in the following way:—Find the angle of the sun's elevation, and draw parallels in that direction from all the points that determine the form of the dark side of the body. The process is illustrated by fig. 5. Let A and B be any two figures on which the light falls parallel to the plane of the perspective, and in the direction of the lines S and *s* draw the lines 1, 2, 3, and 4,

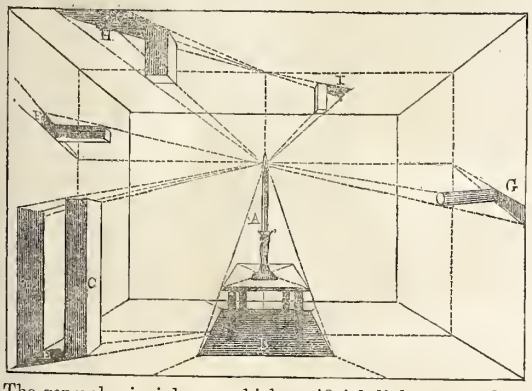
Fig. 5.



parallel to the horizon, and meeting the lines S in 1 and 2, and the lines *s* in 3 and 4; join 1 2 and 3 4, and the four-sided spaces D and E are the shadows required.

When light falls at an angle, it is more difficult to determine the shadow. If it fall forward, it enlarges; if backward, it diminishes; but the vanishing point at which the light comes into the picture or goes out of it at the back may be found by setting off the tangents of the angles.

Fig. 6.



The general principle on which artificial light casts shadows may be found from fig. 6. A is the candle, B the shadow of the table, D and E the shadow on the floor and wall by the object C, F the shadow of an object projecting from the same wall, G the shadow of an object projecting from opposite wall, and H and I are shadows of objects projecting downwards from the roof or ceiling.

But while *direct* light comes from a luminous or shining body, whether natural or artificial, there is what is called *reflected* light, or that which first falls on the surface of some body which is not luminous, and is then thrown back from that on other bodies. Now, here some important differences are to be observed. As direct natural light proceeds in straight lines parallel to each other, and light from an artificial source proceeds in rays that diverge or spread, so the light which is reflected leaves the surface of the reflecting body at the same angle at which it falls upon it. Hence the principle, the *angle of reflection* is equal to the *angle of incidence*.

Accordingly, shadows produced by natural light fall all in the same direction; but when the light comes from a small point, such as the flame of a lamp or candle, the shadows fall all around it, while they are still on those sides of objects which are opposite to the light.

When the illuminating body is less than that which causes the shadow, the shadow increases in breadth as it is further from the body, and also as its body is nearer to the light. When the luminous body is larger, the shadow diminishes; and when the bodies are at very great distances from each other, the shadow continues for some space nearly of the same breadth.

The form of the shadow depends on the position of the surface whereon it falls, and also on that of the body which gives the light. If the surface on which the shadow falls be parallel to the body that throws the shadow, the shadow will be similar to that body. If the body stand perpendicular on level ground, the length of the shadow will be to the height of the object which throws it, as radius to the co-tangent of the elevation of the luminous body above the horizon; and if the ground on which the shadow falls be sloping, the shadow will be lengthened when the slope is downward from the object, and shortened when the slope is upward. The proportion may, therefore, be remembered by the following rule: the whole length of the shadow will be as the co-tangent of the angle which the light makes with the surface on which the shadow falls.

Another fact is also observable: no hesitation would ordinarily be felt in making the remark, "I see the sun shining on that house as clearly as possible," and yet it would not be correct. Not a single ray can be seen which passes from the sun to the house, and as no rays can be seen by the spectator but those which enter his eyes, it is the rays which are reflected by the house to him, and not those which proceed from the sun to the house that are actually visible. It may be asked, indeed, "Why, then, does one side of the house appear to be in sunshine and the other in the shade? For if I cannot see the sun's rays upon it, the whole of the house should appear in shadow."

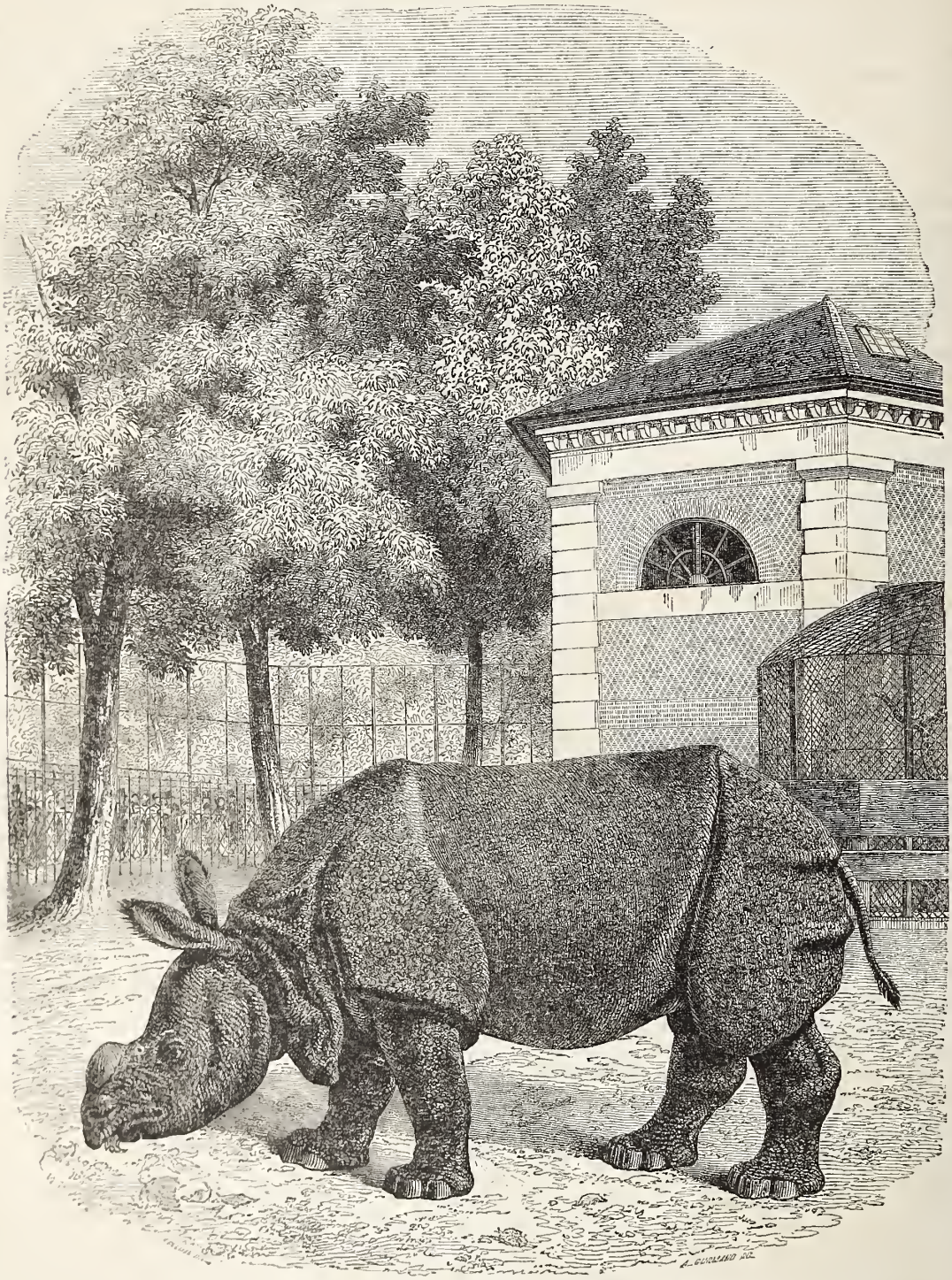
But the answer is easy. That side of the house on which the sun shines reflects more vivid and luminous rays than the side which is in shadow, for the latter is illuminated only by rays reflected upon it by other objects; these rays are, therefore, *twice reflected* before they reach the sight, and as light is more or less absorbed by the bodies it falls on, every time a ray is reflected its intensity is diminished.

There is still a kind of shadow of which we have not spoken, it is that which is styled by artists *accidental*. An accidental shadow in a picture is one the cause of which is invisible, as that of clouds when they fly over a landscape, or the shadow of a tree or a building when not included in the picture. This kind of shadow is of great value on many occasions, as giving distinctiveness and force to a picture which would otherwise look flat and tame.

IRON *VERSUS* GOLD.

Austria possesses at Eisenerz, in Styria, the most remarkable mine of iron in the world. The mountain in which it is situated has been worked for more than 1,000 years. It is 2,840 feet high, and nearly five miles in circumference at its base. It is literally a mountain of iron, the greater portion of the mass being ore of the richest quality. There is a tradition of very long standing amongst the miners to the following effect:—When the barbarians from the regions north of the Danube drove the Romans from Styria, the Genius of the Mountains, wishing to do the new inhabitants a favour, said to them: "Will you have Gold for *one* year, Silver for *twenty* years, or Iron for *ever*?" The wise ancestors of the Styrians, who had just begun to learn the true relative value of these metals, by finding that their rude swords were more than a match for all the wealth of the Romans, decided to accept the latter, and thus their descendants have iron of the finest quality to the present time.

THE RHINOCEROS.



THE RHINOCEROS, AS SEEN IN THE ZOOLOGICAL GARDENS, REGENT'S-PARK.

Until very recently the rhinoceros was an animal but rarely seen in Europe; and even now but few have more than a very vague knowledge of its habits and physiology. Of its general appearance our engraving may serve to convey a very good idea. The head is furnished with a horn growing from the snout, and sometimes three and a half feet long; the upper lip, which is long, ends in a point, and being very pliable, serves to collect the animal's food and convey it to its mouth. One of the most remarkable things in connexion with it, however, is the astonishing thickness and toughness of the skin, which hangs in heavy folds over some parts of the body, and possesses sufficient resistive power to blunt the edge of a sabre, or flatten a musket-ball.

Instead of the long ivory teeth which form the tusks of the elephant, the rhinoceros has, besides his horn, two strong incisive teeth in each jaw. These incisive teeth which the elephant has not, are placed at a great distance from each other in the jaws of the rhinoceros. The end of the tail is like that of the elephant, furnished with a tuft of large bristles very hard and very solid. Huge and seemingly unwieldy as the rhinoceros is, he has the

power of running with great swiftness, and possesses prodigious strength, so that though feeding on herbs, and of extremely peaceable disposition, he is, when roused, more than a match for any other animal.

But though the rhinoceros is thus formidable by nature, yet imagination has not failed to add to its terrors. Its scent it said to be most exquisite, and it is affirmed that it consorts with the tiger. It is reported also that when it has overturned a man or any other animal, it continues to lick the flesh quite from the bone with its tongue, which is extremely rough. Most of these foolish fancies have now, however, disappeared before the increasing light of scientific research.

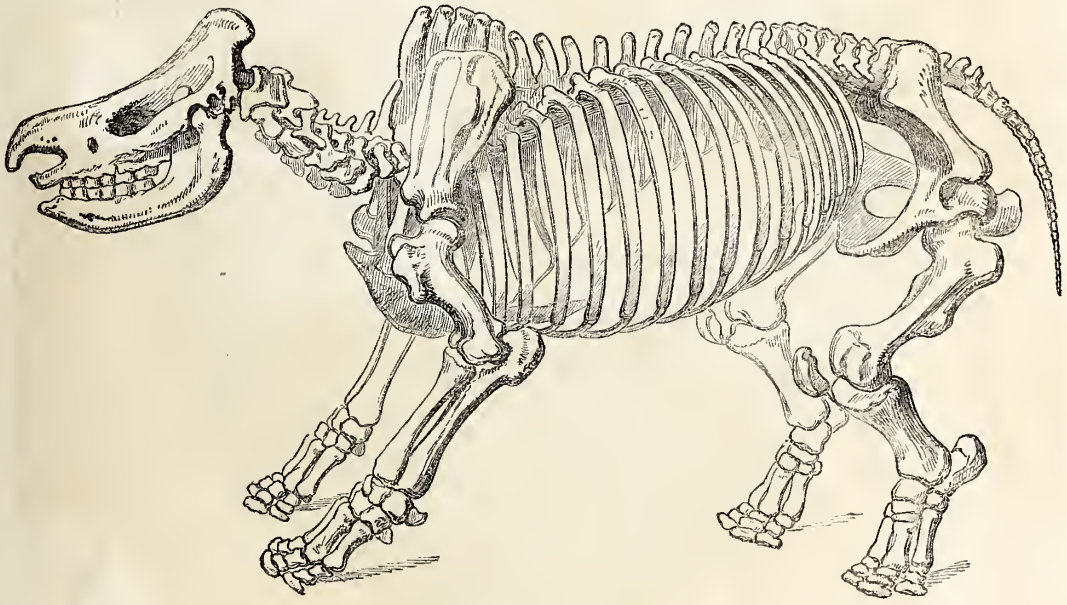
The first rhinoceros ever seen in Europe was that of which Pliny speaks as having been presented by Pompey to the Roman people. According to Dion Cassius, Augustus caused another to be killed in the circus when celebrating his triumph over Cleopatra. Strabo states that he saw one at Alexandria, and has left a description of it. All these had but one horn. In the reign of Domitian two two-horned rhinoceroses were brought to Rome, and figures of them were engraved upon medals struck at the time. Some accounts have come down to us of the importation of some others under the Antonines, Heliogabalus, and Gordius III. But the invasions of the barbarians, and the troubles which preceded the downfal of the empire, prevented any further attention from being bestowed upon curiosities of this kind.

Upon the revival of learning and the extension of maritime discovery, a lively desire was awakened all over Europe to see the productions and animals of foreign countries. About this time, therefore, a rhinoceros was secured in India and forwarded to Emmanuel, king of Portugal, in 1513, and was by him presented to the Pope. But on the voyage to Italy the ship was wrecked and all on board perished. A very imperfect sketch of the specimen was sent from Lisbon to the celebrated engraver, Albert Dürer, who engraved it; and strange to say, down to a very recent date this was the copy from which most of the representations of that animal in works on natural history were taken.

In 1685 a second was captured and brought to England. In 1739 and in 1741 two others were exhibited in various parts of Europe. In 1741 a very young one was placed in the menagerie at Versailles, and of this Buffon speaks in his *Supplements*. It died in 1793. In 1800 another young one was brought from India, intended for a menagerie at Vienna, but died at London on the way, and was dissected by Mr. Thomas, who published the results of his investigation in the "Philosophical Transactions." In 1818 another was exhibited in a strolling menagerie at Paris, and was closely examined by Cuvier. That was the last which was seen on the continent until very recently, although they have been in English collections for a considerable length of time.

Although the rhinoceros is now so rare in Europe, geological researches have placed it beyond doubt that it was at one time very common. Fossil remains of it have been found in the earth in a great number of places. They are in fact almost as numerous as those of the elephant, with which they are frequently mingled and have been found, not in the south of Europe only, but away towards the extreme north. The first of these remains of which we can discover any positive mention are those which were discovered at Canterbury in 1688 by some workmen engaged in sinking a well. It was at first supposed that they belonged to the hippopotamus, but Grew proved this view to be erroneous.

In 1751 a great quantity of bones was found some distance below the surface in the Hartz Mountains in Germany, which from their appearance were supposed to have belonged to the elephant. The celebrated anatomist, Michel, having gone down to examine them, took one of the teeth with him to Paris, and compared it with those of a rhinoceros which was then being exhibited in that city. He then proved in the most explicit manner by the same method which has since been so successful in extending our knowledge of lost species in the animal kingdom, that the remains were those of a rhinoceros.



SKELETON OF THE RHINOCEROS.

Twenty years after this discovery, a more extraordinary one still was made in Siberia, which was destined to remove all doubt upon the subject. A fossil rhinoceros, quite perfect, even to its skin, was found in the month of December, 1771, on the banks of the Viluji, a river which runs into the Lena, in 44° of north latitude. The skin was covered with a thick coating of hair, thus showing its adaptation to a cold climate; as the only species with which we are at the present day acquainted is found in the tropical regions, and has the skin perfectly bare, it was thus clearly proved that a distinct species had in past ages inhabited the regions bordering on the poles, and had become extinct beyond the memory of man. It is greatly to be regretted that the skin of this individual was not preserved.

Since then, various remains have been discovered in various parts of Europe, of some of which Cuvier in his "Researches on Fossils" has given descriptions more or less minute.

THE LADIES' DEPARTMENT.

TRIMMING FOR MANDARIN SLEEVES IN FRIVOLITE.

Materials. — Tatting cotton No. 1; steel shuttle and a purling pin.

This trimming consists of scallops, of which the edge is formed by a series of clusters of leaves in tatting, with wheels of the same work in the centre of each. The leaves are formed of seven loops of tatting, and five of these go round each scallop. The wheel is connected with the edging by bars of button-hole stitch, done in the same tatting cotton, the button-hole stitch being worked on two threads. A row of the same forms the foundation, and joins the scallops together. They are attached to the foundation at the edge of the three first and three last loops. The centre loop of the first leaf of one scallop should just touch the corresponding loop of the last leaf of the next.

For the Scallop. — On beginning the first loop, leave about a yard of the thread, or more, if you can manage a long needleful. Thread this with a coarse sewing needle.

1st loop: 22 double stitches, 1 picot, 4 double, 1 picot, 4 double. Draw up the loop tightly, and with the needle do 4 button-hole stitches on the thread which connects the shuttle and loop. Make a picot on the same thread, and do 4 more button-hole stitches.

2nd: 4 double stitches; join to the last picot of the first loop, 4 double stitches; join to the next picot, 14 double stitches, 1 picot, 4 double stitches, 1 picot, 4 double. Draw up the loop tightly. Work on the thread with the needle, as after the last loop.

3rd. Like 2nd. After drawing it up work *two* button-hole stitches only on the thread.

4th (and centre): 4 double stitches, join to the last picot; 4 double stitches, join to the next; 20 double, 1 picot, 4 double, 1 picot, 4 double. Draw it up, and do 2 button-hole stitches with the needle.

5th: Like 2nd. When drawn up, work 4 stitches on the thread, pass the needle through the picot last made with the needle, and do 4 more.

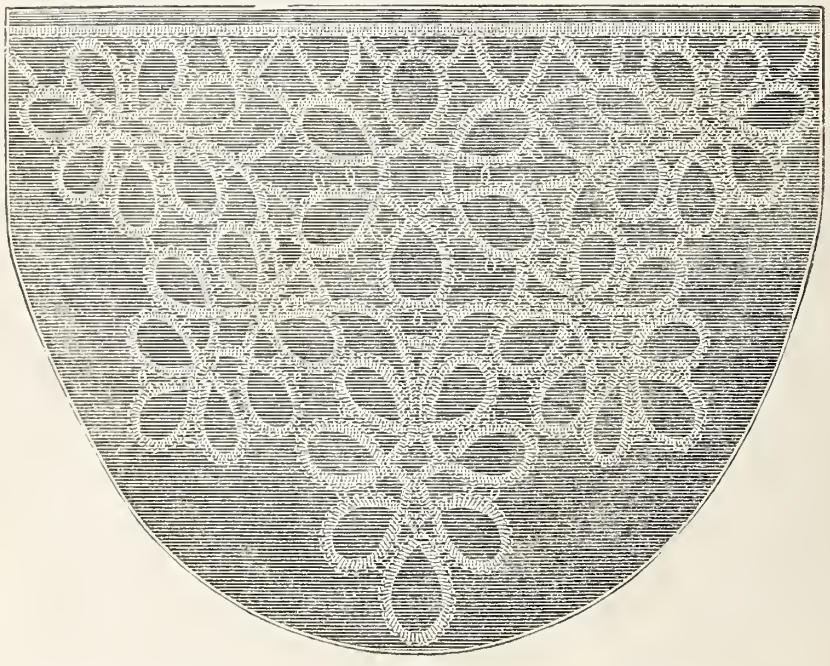
6th: 4 double, join to the last picot, 4 double, join to the next; × 7 double, 1 picot, × twice; 4 double, 1 picot, 4 double. Draw it up, and work on the thread as in the 5th.

7th: Like 6th. Draw it up, and work 8 stitches *on the thread* with the needle; join to the last picot; 8 stitches, join to the next; 16 stitches, make a picot, 8 more, make a picot, 8 more. Now resume the shuttle. A single cluster of leaves being formed.

1st loop of the 2nd and all following sets of leaves: 4 double stitches, join to the last picot on the thread; 4 double, join to th next; 7 double, join to the picot at the point of the last leaf. 7 double, 1 picot; 4 double, 1 picot, 4 double. Draw it up tightly; do 4 button-hole stitches on the thread; make a picot 4 more button-hole stitches.

2nd loop: × 4 double, join to the corresponding picot of the last loop, × twice. 7 double, join to the picot at the point of the 6th leaf of the last set; 7 double, 1 picot, 4 double, 1 picot, 4 double.

The five remaining loops to be done like those of the first set. All the remaining sets like the 2nd. When finished every 5 form a handsome scallop. When the last of the seven is done, fasten off the needleful of thread, and break off that of the shuttle, which also secure. Each scallop is thus complete in itself.



The Wheels.—Leave a needleful of thread, as in the edging. × 4 double stitches, 1 picot, × twice, 7 double, 1 picot, 7 double, 1 picot, 4 double, 1 picot, 4 double. Draw it up, and work 8 button-hole stitches on the thread.

2nd to 5th loop, including both: 4 double, join to last picot, 4 double, × 1 picot, 7 double, × twice, 1 picot, 4 double, 1 picot, 4 double. Draw the loop up. Work 8 button-hole stitches on the thread.

6th (and last) loop: 4 double, join to the last picot, 4 double, 1 picot, 7 double, 1 picot, 7 double, 1 picot, 4 double, join to the first picot of the first loop, 4 double. Draw it up. Work 8 button-hole stitches on the thread, and fasten off both ends.

To Make up the Work. — Tack the scallops on coloured paper, lined with glazed calico; place a wheel in the centre of each scallop; work a rosette in the middle of each wheel, and connect the border and wheel with bars, covered with button-hole stitch.

If this trimming be used for straight edgings, the paper on which it is tacked should be straight; if for sleeves, it should be cut out in the proper form, otherwise the foundation line of button-hole stitches will not sit so well.

For finer trimming, for children's dresses, and delicate articles, use tatting cotton No. 3. This peculiar material has been manufactured expressly at our suggestion for this purpose, as no thread before in use was really suited for the work.

INSTRUCTIONS IN EMBROIDERY.

(*Concluded from page* 47.)

The next operation is to place the work in a frame, preparatory to its being embroidered. Embroidery frames should be very well made, so that when screwed together the sides and ends are perfectly *true*, as no care in working will prevent a piece of embroidery from being drawn awry, if the frame be uneven, or if it be badly placed in it.

Frames of all sorts have a piece of webbing at the top and bottom, whilst the side laths are perforated with small holes. The best are on stands, but some are of very simple construction, and only intended to be rested on the table. Whatever the kind selected, it should be sufficiently strong and stout in every part to sustain a piece of work tightly stretched in it without warping or giving way.

The selvedges of the material, whether it be canvas or any other substance, are the parts that must be attached to the sides of the frame. The ends are to be hemmed, and sewed *by a thread* to the webbing, several folds of soft paper being smoothly rolled round the bars, if the length be too great to admit of its being all exposed at once. Canvas should be herring-boned instead of hemmed. The extremities of the frame must then be stretched as tightly as possible by means of the nuts, and the selvedges braced to the side-laths by means of fine twine.

When cloth and canvas are framed together, the former must be cut rather the smaller, as it will stretch more than canvas. This is, of course, presuming that the two are ultimately to be of the same size; but very frequently the cloth (which is used to save the trouble of grounding) is much larger than the canvas.

Very large pieces of work should be lined with fine thin holland, which is first to be stretched on the frame, and then the cloth and canvas to be firmly tacked on it, particularly in those parts that are to be worked.

When a pattern is worked on canvas over cloth, the threads are frequently drawn out. The work will, however, be found to look much richer when the superfluous canvas is merely cut away closely; it also wears much better. Any small spaces of grounding intermixed with the design should then be filled in with wool of the exact shade of the cloth.

Tapestry (or as it is popularly termed, *Berlin*) work is done on canvas from painted patterns. The size of the work will, of course, depend on the fineness of the canvas and the stitch in which the design is executed. Canvas is marked according to the number of threads to the square inch which it contains. The coarsest in common use has eleven threads to the square inch, and is termed No. 8. The numbers then run in regular progression, 10, 12, 14, &c., up to 24, each number having two more threads to the inch; No. 30, however, has only four more threads than 24, or thirty-one in the inch. No. 40 has but thirty-five, and No. 50, thirty-seven.

When a Berlin pattern is selected, the size of the canvas of of which it is to be worked must then be determined according to the dimensions the finished piece is intended to be. For instance, a pattern four hundred squares wide would be seventy-two inches if worked on No. 8 canvas, in cross-stitch, and half that width in tent-stitch; whilst on No. 50 canvas, it would only be twenty-two inches in cross-stitch, and proportionably smaller in tent. It must be remembered that tent-stitch occupies only a quarter of the space of cross-stitch, namely, one-half the width and length; or in other words, that four tent-stitches are worked on the space of one cross-stitch.

The principal kinds of canvas are:—

Berlin, or silk canvas,
German cotton canvas,
French, and
Penelope canvas,

Berlin canvas is made in black, white, and pearl white, and is not manufactured in any great variety of sizes. It is expensive, but requires much less labour than any other kind, as it is never grounded. Small and delicate patterns are chiefly chosen for Berlin canvas, and silks, chenilles, and beads are much employed in working them. Beads are, just now, extremely fashionable for this purpose.

German cotton canvas is very cheap, and is distinguished by every tenth thread being yellow. It is very inferior to the French, the squares being oblong, and the threads flat. Many Berlin patterns, especially such as have figures or wreaths, would be utterly spoiled by being worked on this material.

French canvas has round threads, is square in the mesh, and is altogether firmer and pleasanter to work.

Penelope canvas is so called from the threads being in fours, as if they had been worked in cross-stitch which had been picked out.

In choosing canvas, especially the expensive kind, lay it over black or any contrasting colour, that you may detect any knots or imperfections in it.

We will close these general instructions with a few observations which our fair friends will find useful memoranda, giving details of the different kinds of work, when we also furnish illustrative specimens, as in the case of the embroidered note-book (See Illustrated Exhibitor, January 3).

Always damp cloth to take off the gloss before placing it in a frame. Begin the work so that the hand shall not rest on any finished part while another is in progress. But in the case of landscapes, and other pieces where the upper part is very light, that portion must be worked the last.

Purchase enough wool for grounding before beginning a piece, as it is rarely possible to obtain an exact match.

Never use chenille, if you can avoid it, except for articles that are intended to be framed and glazed.

Choose canvas of such a size that the wool will perfectly cover, but not more than cover it, remembering that wool may be split, or used double or treble.

Never fasten off frequently in the same place, or in working silk canvas, carry the thread across any part which will not be covered by the design.

Remember that the finer the canvas, the more *distinct* must be the shades employed.

Do not wind Berlin wool, or cut it into long lengths for fine work.

Keep gold bullion, beads, and all things that are liable to tarnish, carefully wrapped in lead foil paper.

Waste as little as possible of all expensive materials, such as chenille, taking care not to have more at the back of the work than you can avoid.

Have the best needles only, as bad ones cut the silk: round eyes must be used for chenille.

An embroideress should wear a mother-of-pearl, or an ivory thimble, as even silver will spoil delicate colours.

HONITON SPRIG.

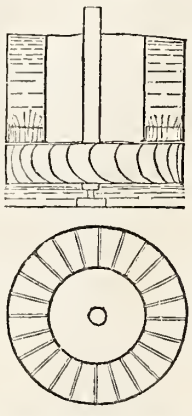
Materials.—Crochet Cotton, No. 60; Crochet-hook, No. 24. (This sprig has no stem at the end.)

14 ch., close for a loop, and work round in s.c. 27 ch., namely 10 for stem, and 17 for centre of flower. Form the 17 into a loop, round which work in s.c. Four petals surround this, made thus: × 12 ch., miss 3, s.c. in 4th, × 3 times, 12 ch., miss 3, slip at the stem. On these loops work 1 slip, 2 s.c., 10 d.c. (on 6 ch.), 2 s.c., 1 slip. Do not work on the s.c. stitch between the loops. 5 s.c. on stem chain. 14 ch., close into a loop, and work round in s.c. 5 s.c. on stem. *Leaf:* 12 ch., miss 1, slip stitch 11. On each side of this vein work 2 s., 7 d.c., 2 s.c. Make a slip stitch at the end of this leaf and the first loop, and fasten off.

(*Continued from page* 199.)

This consists of a reservoir of water in the form of a cylinder, of which the bottom, which is very thick, is pierced with holes widened at the top, to prevent the contraction of the vein or stream of water, and inclined at a certain angle, to admit of its proper action. Immediately below this trough is the wheel, of similar form, but small depth, at the bottom of which are fixed a series of funnels contiguous to each other; at the bottom of each of these is a tube or canal, bent in such a manner that the upper part is vertical and its lower part nearly horizontal. The water as it issues from the holes in the reservoir is received into the funnels, and descends along the tubes or canals, pressing on the bottom, and acting by its weight and centrifugal force to turn the machine.

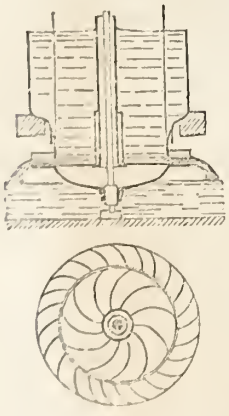
Fig. 11.



A turbine of a very superior construction was invented by M. Fourneyron, a French mechanist, in 1827, and erected in Franche-Comté. It was of six horse-power, and gave a useful effect equal to four-fifths of that of the moving power. Previous to 1832, the "Society for the encouragement of National Industry" in France, proposed a prize for the best application on a large scale, in the arts and manufactures, of hydraulic turbines, or of undershot water-wheels with curved float-boards after Belidor. This prize was justly adjudged to M. Fourneyron. In the bulletin of the society for 1834, he published the description of his machines, with practical instructions as to their mode of construction. Since that period, turbines have spread over France, and are much preferred even to overshot water-wheels; especially as they are appliable to all kinds of falls, and give quite as high a percentage of useful effect.

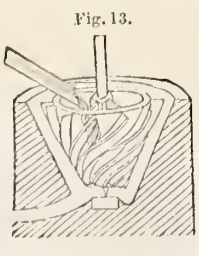
The turbine of Fourneyron (fig. 12) is composed of three principal parts; the wheel or turbine, properly so called, which revolves on an axis; the cylinder with its interior tube, and the sluice; the whole being made of wrought or cast-iron. The water descending through the tube, passes through fixed channels, and acts against the curved float-boards or vanes of the moveable wheel or turbine, placed exterior to and concentric with the cylindric frame, to which the channels are fixed, and round which it revolves. This machine can be made to act under water to a very considerable depth, without much diminution of its useful effect; whence by placing it, at the time of its erection, at the lowest available level, the most useful effect of the fall will be obtained at all times. Besides, it occupies little space, moves with greater velocity than other wheels, and dispenses with complex transformations of motion in its application to practical purposes. Some recent improvements have been made on the turbine in France. A splendid specimen of one, on the newest and most improved construction, was shown in the Great Exhibition, by MM. Fromont and Son, engineers, from Chartres, in the department of the Eure and Loire. It was an improved double turbine on Fontaine's principle, and was capable of being regulated by a governor like the steam-engine of Watt.

Fig. 12.



At some places on the Garonne, in France, *water-mills* are to be seen of a very singular construction; they may be classed under the head of *turbines*. They consist of a species of drum, represented in fig. 13, having the form of an inverted cone, which revolves in a similar and corresponding shaft of masonry. The vanes are applied obliquely on the surface of the drum, where they form portions of a spiral or helix. These vanes, so arranged, cause the drum or wheel to revolve with great velocity, and consequently the mill attached to its axle, by the action of a stream of water.

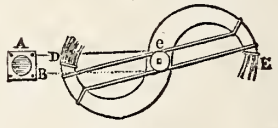
Fig. 13.



If in the preceding machine, the vanes are surrounded by a shrouding concentric with the surface of the drum, and making one piece with it, we have then the machine called the *Danaide*.

Barker's mill, or reaction-wheel, was invented in the beginning of the eighteenth century, and was described by Desaguliers in his "Experimental Philosophy," vol. ii. p. 468. It was re-invented by M. Segner, and its properties investigated by D. Bernouilli and M. Euler. Latterly it received the form represented in fig. 14, which was given to it by M. Manoury d'Ectot. A vertical alimentary tube A, bent horizontally at B, and then vertically at C, brings the water to the centre of another moveable tube D C E, in the form of the letter S. The water then escaping through the orifices D and E, give to the tube D C E a rapid motion of rotation around its vertical axis.

Fig. 14.



PETER MIGNARD.

A REMARKABLE instance of the imitative talent of this great artist is related by the father of the new Chancellor of the Exchequer in the first volume of his "*Curiosities of Literature.*"

He painted a Magdalen on a canvas fabricated at Rome. A broker, in concert with Mignard, went to the Chevalier de Clairville and told him as a secret that he was to receive from Italy a Magdalen of Guido, and his masterpiece. The chevalier caught the bait, begged the preference, and purchased the picture at a very high price. He was informed that he had been imposed upon, and that the Magdalen had been painted by Mignard. Mignard himself caused the alarm to be given, but the amateur would not believe it; all the connoisseurs agreed it was a Guido, and the famous Le Brun corroborated this opinion. The chevalier came to Mignard:—"Some persons assure me that my Magdalen is your work!"—"Mine! they do me great honour. I am sure that Le Brun is not of this opinion." "Le Brun swears it can be no other than a Guido. You shall dine with me, and meet several of the first connoisseurs."

On the day of the meeting, the picture was again more closely inspected. Mignard hinted his doubts whether the piece was the work of that great master: he insinuated that it was possible to be deceived; and added, that if it was Guido's, he did not think it in his best manner. "It is a Guido, sir, and in his very best manner," replied Le Brun, with warmth; and all the critics were unanimous. Mignard then spoke in a firm tone of voice: "And I, gentlemen, will wager three hundred louis that it is not a Guido." The dispute now became violent: Le Brun was desirous of accepting the wager. In a word, the affair became such that it could add nothing more to the glory of Mignard. "No, sir," replied the latter, "I am too honest to bet when I am certain to win. Monsieur le Chevalier, this piece cost you two thousand crowns: the money must be returned—the painting is *mine*." Le Brun would not believe it. "The proof," Mignard continued, "is easy. On this canvas, which is a Roman one, was the portrait of a cardinal; I will show you his cap." The chevalier did not know which of the rival artists to credit; the proposition alarmed him. "He who painted the picture shall repair it," said Mignard. He took a pencil dipped in oil, and rubbing the hair of the Magdalen, discovered the cap of the cardinal. The honour of the ingenious painter could no longer be disputed; Le Brun vexed, sarcastically exclaimed, "Always paint Guido, but never Mignard."

THE CASTLE OF SEGOVIA.



Many cities have certainly a greater right to call themselves "*Eternal*" than Rome, so many times dismantled by her enemies. Their very insignificance has given them a security which other towns have been without, and it would require a convulsion of nature, such as that which engulphed Pompeii, to bring ruin upon them, as their existence seems to be guaranteed by Provi-

dence against every attempt on the part of man. Far different from those proud and ambitious cities which draw upon themselves the vengeance of their conquerors, these towns lose nothing in changing masters, for every r ler seems to endeavour to add to the beauty and richness of their buildings.

Segovia is of this number. Built in a most delightful situation among the mountains, and as ancient as Burgos, Salamanca, or Valladolid, which have the poetic assurance to consider themselves as having been founded by Hercules, it has suffered less from foreign invasions or civil war than either of its Castillian sisters. Although warlike when occasion offered, it has never striven to rival its neighbours either in power or dominion. Even at the present day little attention is directed towards it, although merited on more than one account. Though connected with the Spanish capital by two roads, it makes no attempts to extend the circle of its external relations; and in the winter any attempt to discover a comfortable conveyance across the snows of Guadarrama, which separate it from Madrid, would be quite fruitless. During three months of the year, it seems, like many Alpine animals, to exist in a lethargic sleep. Segovia lives within itself among its mountains, perfectly indifferent to the political and social convulsions which agitate the rest of the peninsula. Far different is it in summer, when the town is all life and brilliancy. That is the time to study the remains of antiquity which Segovia jealously preserves within itself against the attacks of men, who are more destructive than time itself. It was a favourite town of the Romans, who built the noble aqueduct which the Spaniards have now strangely called the "Bridge of Segovia." It is an almost cyclopean work, constructed of enormous masses of dark grey granite, joined together without any cement, and is at the present time about thirty feet in height at *Azoquejo*. We say at the present time, as the sand which has accumulated at its base takes much from its real elevation. Not a blade of grass has sprung from the interstices of the stones, and their sombre colour adds much to the grandeur of the structure.

It has always been a vexed and disputed point among antiquaries whether it was Adrian or Vespasian who constructed this aqueduct; and no inscription has ever been found which could throw the smallest light on this very obscure subject. We will not enter into the merits of the two hypotheses; it would be neither an interesting nor a profitable investigation; but we shall content ourselves with mentioning that through it a small river, the Rio Frio, flows to Segovia, and near the convent of San Gabriel, over that portion of the structure which is called the "Bridge," consisting of 320 arches, of which 35 were restored during the reign of Isabella the Catholic. It is only at deep valleys, as at the *Azoquejo*, that these arches are found, as on the hill side the water flows through a simple channel of stone.

This structure has the advantage over many other antiquities of being now as useful as it was the first day it was finished; and will probably endure for ages to come if it is able to resist the pernicious influence of the adjoining houses, many of which are of the period of Henry III., and much admired for their Gothic fronts. At the back of these houses the piers supporting the aqueduct have been undermined to form cellars and storerooms, and in other places the water has been conducted over the side by small canals to the gardens and fields on either hand, at the risk of seriously injuring the foundations by the continued dripping and moisture of the water. But in Spain such trifles are never considered worthy of a thought.

The streets of Segovia, the convents still standing, and buildings of every description, are filled with fragments of antique sculpture, probably dating from the time of the Lower Empire. The remains of sculptured animals are seen at every step, as is the case in all Spanish towns of Roman origin, but, unfortunately, their mutilated state makes it often almost impossible to form any just opinion of their merits as works of art.

It is stated that remains are still extant of Gothic edifices, but it is questionable whether the ruins, which are considered as such, are of any greater antiquity than the twelfth century.

The cathedral, commenced at the end of the fifteenth century, but only finished at a later epoch, contains many beauties of detail, without being remarkable for any grandeur or correctness of style. The stalls in the choir, carved by Bartolomeo Fernandez, a native of Segovia; several altar-screens, ascribed to Diego de Urbain; and some paintings, by Pantoja de la Cruz, are worthy of attention. The church of La Vera Cruz, consecrated 1204, and that of Santo-Christo de Santiago, contain some exquisite paintings, and several very ancient and curious tombs.

The most remarkable building of Segovia is, however, the Alcazar, rising picturesquely from the summit of an immense rock near the aqueduct, and looking down into a deep ravine, at the bottom of which flows the narrow and winding river Eresma. This formidable castle, which is flanked at each corner by an embattled turret, dates from various times. It was first founded by Alphonse the Wise, who lived within its walls, and to whom by far the greater part is attributed, though it underwent many changes during the turbulent reign of Juan II. Later still it passed through the hands of Herrera, the architect of the Escurial, who, though undoubtedly a man of great genius, still had, like Michael Angelo, a profound disdain for the works of his predecessors, and never troubled himself to preserve the original idea of any buildings with whose restoration he was intrusted. This unfortunate egoism shows itself particularly in the court-yard, the balconies, and, above all, in the grand staircase, but, fortunately, the beautiful spiral staircase which leads to the donjon remained uninjured, and under the first few steps was discovered a heap of broken but very curious arms, of great antiquity.

The interior of the Castle of Segovia is in perfect accordance with the magnificence of its exterior. Many apartments are decorated with delicate traceries and pendant ornaments, in the style of the Alhambra, and, like those of the Alcazar of Seville, were executed by Arabian workmen during the Christian dominion of the fourteenth century, for in many places the crowns of the kings of Castille may be seen, surrounded by Latin mottoes and extracts from the Koran. The most remarkable apartments are the chamber of Alphonso XI. and the portrait gallery, so called from a series of figures carved in wood and painted, representing the kings and heroes of Castille and Leon from the time of the Goths to Juanna the Mad. These figures are fifty-two in number. In the first storey a small room is shown, perhaps less richly decorated, but not less elegant, than the others, where a tragic circumstance is said to have taken place in 1326. As the story goes, a lady of the court of Henry III., having approached the balcony with the infant Don Pedro in her arms, accidentally let him fall, and he was dashed to pieces, many hundred feet below, on the rocks, by the river Eresma. According to some historians, the unfortunate lady precipitated herself from the same window; others state that Henry III. ordered her to be executed. However this may have been, a monument in the chapel records the unfortunate accident, and represents the child holding a naked sword in his hand—certainly a singular kind of plaything for an infant, if it does not refer to the fate of the unhappy cause of his death.

The chapel also contains an "Adoration," executed in a masterly style by Bartolomeo Carducho.

It is only since a few years that the Castle of Segovia has been used as a military school. After having served for a long time as a royal residence, it became, under the house of Austria, a state prison, and was used for that purpose up to the convention of Bergara. The side which overlooks the town is pierced with narrow-grated loopholes, which give but little light and air, and no view but that of a small portion of the sky. In the donjon several built-up cells are shown, and the dark mouths of many dungeons, which have never been fully explored.

Although this was a prison, it occasionally happened that those who were so unfortunate as to be placed within its walls were treated more as princes than prisoners; as in the case of the Duke de Ripperda, the descendant of a Dutch family, but a naturalised Spaniard, and the prime minister of Philip V., who having by his intrigues fallen into disgrace with his royal master, had the most sumptuous apartments of the Alcazar assigned to him as his prison, with a monthly allowance of three hundred doubloons, at that time considered an enormous sum. Notwithstanding all this, such is the love of liberty in the human heart, that, dissatisfied with this undeserved generosity towards him, the wily minister succeeded in effecting his escape from one of the balconies of the Alcazar with the aid of a young woman of

egovia and his French servant, and, after turning catholic, hen protestant, afterwards again catholic, he embraced the Iohammedan creed, and became a pasha and generalissimo of the Emperor of Morocco's troops. He found it impossible, however, nscrupulous and skilled in every wile and artifice as he was, to reserve his dignities and good fortune to the end, for at Tangiers miserable hovel is shown, where he is said to have died in lmost positive want, at a great age, having devoted his last years o the cultivation of plants and flowers.

THE OAK (*Quercus*).

FEW forest-trees are so extensively distributed over the world as he oak. In its wild state, however, it is scarcely known in the outhern hemisphere. In the islands of the Indian Archipelago t reaches its most southern limits, especially in Java; thence it asses upwards beyond the equinoctial line, and following the astern parts of Asia, spreads to the westward along the Hima- aya mountains, and reaching Europe is arrested only by the Atlantic ocean. On the other hand, running eastward of its Asiatic origin, it over-runs America, from Canada and New Albion through California and Mexico, till its progress south- ward is stopped by the Isthmus of Darien.

But though the *genus* is thus widely distributed, its various species are confined within comparatively narrow limits. Many of the Javanese kinds appear to be peculiar to the Indian Archi- pelago, or only occur near the south-eastern angle of Asia. Those of the Himalaya range are perfectly distinct from the oaks of the regions beyond, and have not even been found on the mountains of Persia. Several of the other oriental kinds have a similar local peculiarity, and the American species are, with few exceptions, found only in their own country. It will thus be seen that the different species which compose the genus *Oak* are extremely numerous—amounting probably, in the aggregate, to about one hundred and fifty. This numerical extent may, perhaps, account for the frequent mistakes made by unskilful botanists in treating of this plant, than which few have been more inaccurately described by various writers.

Whilst, however, the species are thus numerous and exten- sively distributed, they all possess, in a greater or less degree, characteristics which are common to the whole genus—hardness, durability, slowness of growth, and some other physiological peculiarities which distinguish them as a class from other forest trees. A detailed account of each of these would be incompatible with our space, but we will note down a few of the chief charac- teristics which belong to the species most common in Europe. These may be divided into three groups, named respectively *Robora*, or Forest oaks; *Ilices*, or European oaks; *Cerres*, or Mossy-cupped oaks.

FOREST OAKS.

The species of oak embraced in this group are mostly distin- guished by their thin, drooping leaves, whose lobes are never lengthened into a bristle, and whose acorns are seated in shallow cups, the scales of which are so short and closely pressed to the sides as to form scarcely visible extensions. The following are a few of the most common of the individual species included in the group *Robora*:—

Quercus Pedunculata, or common British oak.—The leaves of this species of the plant, which are sessile, or nearly so, have numerous deep sinuosities and a thin texture, with but little polish on their upper side. Its acorns are arranged in long- stalked spikes, as seen in fig. 1. This is our commonest oak in England, and appears not to be confined to the colder parts of Europe, though certainly it is much more common in the northern than southern parts of the European continent. The hardness and durability of its timber has led to its being considered the only kind of oak suitable for the purposes of naval architecture. This impression, however, is erroneous, as the wood of the next species is equally good for ship-building. The trunk of the *Pedunculata* sometimes attains to a very extraordinary size. In Allonville, in Normandy, there is one whose interior, hollowed by decay, has been converted into a place of worship; and at Salcey is another, which is used as a cattle-fold. Others else- where have served as tanks, tombs, prisons, and dwelling-houses. The occurrence of this decay in the interior, which is the result of a species of slow combustion of the wood of the trunk, seems to be the natural termination of the life of the tree. As long, how- ever, as enough of the tissue is spared to transmit the sap from the roots to the branches, so long does the tree continue capable

Fig. 1.



of existence to an almost indefinite period. Our engraving (as seen in fig. 3, p. 212) represents a trunk in which the decay has con- siderably advanced.

Q. Sessiliflora, or Sessile-cupped oak.—The leaves of this kind, which are on rather long yellowish stalks, differ from those of the last in having a firm texture and much polish on their upper side. Its acorns are either altogether sessile, or are arranged in very short stalked spikes, as shown by fig. 2. The strength and toughness of this species of oak have been proved by numerous experiments, and the result has shown that in these respects it

Fig. 2.



differs but little from the last. Its durability is attested by the well-known fact that the roof of Westminster-hall is constructed of it, and not of chesnut, as has sometimes been erroneously stated. It has likewise been found to be the timber of some of the most ancient buildings in this country and elsewhere. This kind of oak is distinguished by its medullary rays, or silver grain, being so far apart that it cannot easily be split. It is found all over England, but, with the exception of North Wales, nowhere in much quantity. It is a much handsomer plant than the last, and, being of speedier growth, is, therefore, more advantageous for the planter. Besides the two species of the forest oak now mentioned, there are some others, but their points of difference are too trifling to call for a detailed enumeration in a brief notice like the present. This class of oaks generally require about two hundred years to attain their full size. Their average height is then about 120 feet.

THE EUROPEAN, OR EVERGREEN OAKS.

This group, as the name given to it indicates, comprehends all European oaks with leaves truly evergreen. Those most worthy of notice are the species *Ilex*, the common evergreen, or Holm oak, with leaves ovate-oblong, acute, coriaceous, entire, or ser- rated, and hoary underneath. Its bark is even, and its acorns ovate, on short stalks. It is to be found all over the south of Europe, but more especially in the neighbourhood of the sea. In its wild state it grows singly or in small clusters, but not in whole forests. Its acorns are bitter and unfit for food, and its wood is hard, heavy, and tough.

A second species, which belongs to the section *evergreen*, is the *Q. Ballotta*, or Sweet-acorn oak. Its leaves are elliptical, coriaceous, entire, or serrated, very obtuse, white and downy underneath. This evergreen oak, says Captain Cooke, in his "Sketches in Spain," is one of the leading vegetable features of nearly all Spain. The native woods are formed of it in a great measure. As a species, it is quite distinct from the *Ilex;* its leaves are thicker, more rounded at the point, of a dull glaucous green, and the tree is altogether more compact and of a less graceful form. The chief difference between the two species, however, is in the acorns, which in the *Ballotta* are not only eatable, but, when in perfection, are equal, or even superior, to the chesnut. These are the edible acorns of the ancients, which they believed fattened the tunny fish on its passage from the Mediterranean to the ocean — a fable, however, which only proves that the species once grew along the delicious shores and rocks of Andalusia, which, unhappily, is not the case now.

Q. Suber, or the Cork-tree.—The leaves of this species are ovate-oblong, blunt-ish, coriaceous, entire or sharply serrated, and downy beneath. This tree spreads over all the warm parts of Spain, but is most abundant in Catalonia and Valencia, whence the principal exports of it are made. It is of its bark that the corks in ordinary use are made.

Q. Fagínea, or Beech oak.—This tree, which is a native of Portugal, Spain, and Tangiers, is, we believe, unknown in our gardens. Its leaves are obovate, with numerous uniform shallow lobes, and downy beneath. Its fruit is sessile, and its acorns somewhat cylindrical in shape.

Mossy-cupped oak.—The species comprising this section are distinguished by their deeply-pinnatifid leaves, the long narrow loose scales of their cup, and their equally-long drooping staples. The following are the chief members of this group:—

Q. Cerris, or the Turkey oak.—Its leaves are deciduous, on very short stalks, oblong, deeply and unequally pinnatifid, and downy underneath; its lobes are lanceolate, acute, and somewhat angular. It is exceedingly common all over the south-east of Europe, where it seems to form some of the finest specimens of oak. It is more graceful in appearance and grows much faster than the British oak.

Q. Hispanica, or Spanish oak.—The trunk of this tree is corky, and its branches rather erect. The leaves are nearly evergreen, lanceolate, acute, with fine crematures, which are sharp-pointed, coriaceous, green, glaucous, and downy beneath. Its cups are top-shaped and somewhat sessile, with prickly-spreading scales. It grows, as its name indicates, in Spain, and is found likewise by the Algerine river Monchique.

Q. Austriaca, or Austrian oak, is found in Austria, Hungary, and some other of the adjacent countries. It differs from the Spanish oak chiefly in its leaves being larger and more deeply sinuated, and in the greater size of its acorns.

Fig. 3.



These brief remarks on some of the European species of "the brave old oak" may not be uninstructive. From the earliest ages it has been considered the king of European trees, and was connected with the most ancient religious rites and ceremonies of most of the continental nations; especially amongst the Greeks, Etrurians, Germans, Celts, and Scandinavians. The oak at Dordona, in North Greece, was the seat of the oldest Hellenic oracle, whose declarations the priests, in their paroxysms, sent forth and promulgated on leaves. The oak, which was sacred to Zeus himself, was the tree *par excellence* to the old Greek, and from it he called his wood-nymphs "nymphs of the oak;" and the very lives of these supernatural beings were bound up with their tree. So, everywhere, in the old worship of nature, the worship of the oak was associated with, and called forth by, the material bounties which the tree conferred upon the untutored sons of nature. The fruit of the living oak fed them, and the hollow trunk of the withered one provided for them a dwelling. Not less venerated by the other nations mentioned, should we find it if we examined their religious rites and ceremonies. The very name of the Celtic priests, the *Druids* (from δρυς, "an oak"), shows how intimately it was associated with their worship too, even if the independent proof of it which exists were wanting. Maximus Tyrius, a Greek writer, in treating of the system of the Druids says—Αγαλμα Διὸς Κελτικοῦ ὑψήλη δρυς, "the form of the Celtic Jupiter is that of a towering oak." The Cymri, again,

who were a northern people, and evidently of the same origin as the old German *Cimbri* and the *Cimmerians* of North Greece, called the oak *Derwen*, and their priests *Derwydd*. By the Scandinavians, too, it was held in equal reverence. A more detailed examination of the extent to which it was mixed up with the sacred rites and mysteries of these nations, would be not only interesting, but instructive, if space allowed. But the few facts which we have mentioned are for the present sufficient to show how much the oak has been valued in Europe from the earliest times. And though its religious associations and uses have passed away with the barbarism out of which they sprung, its usefulness and beauty still entitle it to the rank of king amongst our forest-trees. Its peculiar strength and durability have long made it the chief element in the wooden walls of England, and led to its use wherever these two characteristics are required. It has other qualities, however, which commend it equally to the service of art. How largely it furnishes both the material, and, from its foliage, the design of the carvings of the middle ages, no one acquainted with the character of Gothic art need be informed. Nor is this the only connexion in which it elicits artistic admiration. The solid and towering grandeur of its trunk, the tortuous irregularities of its branches (as seen in fig. 4), and the beauty of its foliage, are too striking to be overlooked by the painter. Few who have visited the picture gallery in Dresden will forget Rubens' "Boar Hunt in an Oak Forest."

Fig. 4.



JOSEPH MALLORD WILLIAM TURNER, R.A.

Amongst the many remarkable individuals who have been removed from the busy scenes of life within the last five eventful years, probably not one has left so many enduring records of his genius and his fame as the one whose name stands at the head of this article. Like many of the great men of the present age he owed nothing to fortune, and during the whole course of his long and successful career, he left nothing to her which could be accomplished by industry and perseverance. There is not perhaps, in the annals of biography, a more remarkable instance of what may be achieved by the force of intellect and the weight of personal character against any odds however great. Turner was born in all but the lowest rank of life. His father was a hairdresser, and followed his calling in the house, 26, Maiden-lane, Covent-garden, where the great artist first saw the light. The day of his birth is not known, as he always, as if studiously, concealed it; but he was christened at the parish church of St. Paul's, on the 14th May, 1775. His great reserve and extreme dislike to allow anything more to be known about him than he could help, have rendered the details of his personal history but scanty and incoherent. But the mystery by which he surrounded himself and his doings only rendered the curiosity of the public the more intense, and from time to time as much of the incidents of his early career have leaked out as may serve to give a tolerable idea of the man whose mighty works have excited so much admiration.

His taste for art, and brilliancy of colouring, were early displayed. The first manifestation of a peculiarity which is more or less traceable in all his works, is said to have been called forth by seeing an emblazoned drawing of a coat of arms lying on the table of a gentleman, to whose house he had accompanied his father to see him dress the owner's hair. Upon his return he set to work and succeeded in making a very fair sketch of the lion which formed part of the armorial ensigns. After this, he devoted the greater part of his time to drawing, and singularly enough, aspired thus early not merely to copy well, but to sketch from nature, and for this purpose made frequent excursions into the fields in the neighbourhood of London. It was fortunate for him that his father had the good sense and discrimination to see where is son's talents lay, and to place no obstacle in the way of his following the bent of his inclination.

An acquaintanceship which he formed with Girtin, who was the first to introduce drawing with water-colours upon cartridge paper, was the means of enabling him to turn his artistic pursuits to practical account. Turner and Girtin, were employed, when both mere boys, to colour prints for Mr. John R. Smith, of Maiden-lane, a mezzotinto engraver and portrait painter of considerable celebrity.

The former was afterwards introduced to Powden, the architect, and by him employed to put foregrounds into his architectural drawings. It was considered by many of his friends that this was a favourable opportunity for young Turner to make a good start in life, by apprenticing himself to Powden, but from reluctance on his own or his father's part, or his reliance upon his powers in other departments, the plan never received any serious consideration from either of them. Advancing step by step, the young artist began to teach water-colour drawing in schools at five shillings a lesson—then at ten, and finally raised his terms to a guinea. He was now employed by publishers to make drawings for some of their works. He made an excursion to Oxford, and there was engaged to sketch some views for the "Oxford Almanack," which was the means of bringing his talents under the notice of several noblemen and gentlemen more or less connected with the University.

At an early period he entered himself as a student in the Royal Academy, and for five years continued to labour in his vocation with the utmost assiduity in his father's house in Maiden-lane, and afterwards, for five years, in apartments which he took in Harley-street. In his fifteenth year, the second of his studentship in the Academy, he exhibited his first picture—"View of the Archbishop's Palace at Lambeth." It was a water-colour drawing. During these ten years he exhibited no less than fifty-nine pictures, and in 1800 was elected an associate. His "Rising Squall, Hot Wells," from St. Vincent's Rock, Bristol, was the first of his works in which he displayed the wonderful mastery of effect for which he afterwards became so celebrated. He continued to execute drawings from a variety of objects, the sale of which afforded him the means of visiting various parts of the kingdom, and studying nature under every aspect. In this way some of the finest scenes in Yorkshire, Westmoreland, Cumberland, and Northumberland, have furnished subjects for his pencil. In every one he endeavours to display his observation of some novel combination in nature—storm and sunshine, murky clouds, and lowering tempests. He thus exactly hit the public taste. People had begun to be tired of the ever-recurring "moonlight scenes," clear skies, and calm waters. Thus, Buttermere Lake he chose to represent under a shower; Norham at daybreak (not as Sir Walter Scott drew it afterwards, at day-set, in the opening of "Marmion"); and under the colour of a "View of Dunstanburgh Castle" he gave us an effect of sunrise after a squally night, with a taste of the wild coast of Northumberland, and only a distant peep of the castle from which the picture derived its name. Other favourite effects with him at this time were—a hazy sunrise, clearing up after a showery day, and the approach of a thunderstorm at sunset. He was thus early attentive to the varieties of nature, and copied her with a master's hand. He had not yet begun to make "additions" to nature, and to think, with Sir Godfrey Kneller, that, if his assistance had been sought at the beginning of the world, the world had been a more beautiful one than it now is. In the two years during which he was an associate, he exhibited, in all, fourteen pictures, and in 1802 was elected a member of the Academy. Up to this period he had mostly painted in water-colours. He now began to turn his attention to oil. He had already drawn a great number of his subjects from scenes upon the coast and incidents connected with maritime life. In order to create a greater variety, and add to his stock of experience, he took a trip to Scotland, Switzerland, and the Rhine, and the result was his splendid pictures "Edinburgh from the Calton-hill," "The Festival upon the opening of the Village of Maçon," "The Falls of the Rhine at Schaffhausen," &c. Recurring before long, however, to his combination of natural phenomena, for the purpose of producing effect, he painted and exhibited, in 1807, "The Sun rising through Vapour," "Fishermen Cleaning and Selling Fish," and another which one would think less adapted to his powers, "A Country Blacksmith disputing upon the price of iron and the price charged to the Butcher for shoeing his Pony." Everyone knows how highly-coloured all Turner's pictures were. These two were no exceptions to the general rule, and this, added to the great ability which was, of course, displayed in their execution, was near being the means of seriously injuring the picture of another and younger aspirant to fame, which was hung between them: this was Wilkie's "Blind Fiddler." A day or two previous to the Exhibition, Turner had reddened his sun, and blew the bellows of his art upon the blacksmith's forge, so that the modest hues of the poor Scotchman's painting were completely eclipsed. "This," Turner said, "was to put the Scotchman's nose out of joint, who had gained so much reputation by his Village Politicians." Wilkie felt this severely, but never resented it.

The great secret of Turner's fame was his constant recourse to nature, and his wonderful activity and power of memory, coupled with great natural genius, and indifference to praise. His religious study of nature was such, that he would walk through portions of England, twenty to twenty-five miles a day, with his little modicum of baggage at the end of a stick, sketching rapidly on his way all good pieces of composition, and marking effects with a power that daguerreotyped them in his mind with unerring truth at the happiest moment. There were few moving phenomena in clouds or shadows which he did not fix indelibly in his memory, though he might not call them into requisition for years afterwards.

When the Pantheon was burned in Oxford-street, in 1792, he chanced to be passing by the spot on the following morning, and observed huge icicles depending from various parts of the ruins. He instantly sketched it, and the result was a very striking painting of the scene which was exhibited at the Royal Academy in the May following. This is an instance of his eager watchfulness to turn every passing incident to professional account. He could not walk the streets of London without seeing curious effects of light and shade in the smoke issuing from the chimneys. His pencil was ever in his hand, ready for everything that might turn up, and his clear recollection of the minutest details of scenes which he had once closely examined, frequently excited the astonishment of his friends.

Amongst the works which confirmed his reputation are a "Spithead's Boat's Crew receiving an Anchor," "Lowther Castle," "The Deluge," "The Gale at Sea," and the "Guardship up the Nore."

He published the "Liber Studiorum," in imitation of Claude's "Liber Veritatis," but on a much larger scale. It contains an immense number of drawings which possess the highest excellence; so that in the wide range of subjects which it embraces, Turner has shown that there was no department of art in which he could not shine. In 1814, he undertook in conjunction with the Cooks, to make a series of sketches of the picturesque scenery on the southern coast, and the result was a work of surpassing beauty and truthfulness. And the engravers seem to have entered fully into the spirit of the drawings. His pictures, as might naturally be expected in the case of a man whose life was so long and whose industry was so indomitable, have found their way into many hands. "Echo," "Evening," "The Thames at Eton," "The Thames at Windsor," "Chichester Canal," "Petworth Park," "Brighton Pier," "Tabley House and Lake Cheshire," are at Petworth. "The Gale at Sea," one of his finest works, if not *the* finest, is in the Bridgewater Gallery. "The Festival at the opening of the Vintage at Marva," is in the possession of Lord Yarborough. In the Vernon Gallery is "William III. landing at Torbay," and various others adorn the cabinets of private individuals. No one, however, has so large or so varied a selection of his works as Mr. Windus of Tottenham-green. Every variety of style which Turner attempted, from his earliest to his latest works may here be seen and admired. Mr. Rogers, the poet, has his "Stonehenge." He made an immense number of drawings for booksellers and print publishers, and it is said that he was anything but an easy customer to deal with. His great tact in bargain-making here came into full play, and as his high standing and great wealth placed it in his power to name his own price, he exer-

cised his privilege without mercy or scruple; and we may safely aver, avenged the wrongs of thousands of poor authors and artists in one swoop. He drew the illustrations for Rogers's "Italy," and the vignettes for Brydges' edition of Milton.

There never was a more diligent follower of his profession than Turner. From his boyhood he was an extremely early riser, and being little given to amusement of any sort, disliking society, and having but few friends, it is hardly an exaggeration to say that his whole life was devoted to the practice of his art. But as he allowed no one to be on terms of what may be termed intimacy with him, nothing was known of the process by which he brought about the wonderful effects upon canvas which the public so much admired. Upon everything connected with himself he maintained the strictest reserve. He had no relations except one or two cousins, and these knew but little of him, or he of them. No one, we believe, except Lord Egremont at Petworth was ever admitted to his studio. It was one of Turner's foibles to veil everything he did in mystery. The secret by which he produced some of his curious colouring will probably remain a secret for ever. When his pictures appeared on the walls of the academy at the annual exhibitions, none knew when they had been painted, and none dared to ask him. He was once told that an eminent publisher boasted that he had been admitted to his studio. "How could you be such a fool as to believe him?" was the gruff reply. No one ever stole a march upon him but Chantrey the sculptor, and probably few men knew Turner as well. Both being of silent and somewhat retiring disposition, they loved fishing as well as art, and thus a strong sympathy sprung up between them, which was probably the more sincere on Turner's part, since Chantrey did not follow painting as a means of living. There was thus no ground for jealousy.

It is related by a recent writer, that when Turner was at Petworth upon a professional visit, he kept the door of his studio locked, no one but Lord Egremont himself being admitted; and that there might be no mistake, there was a peculiar knock agreed upon, by which the artist might understand that it was his patron who sought admittance. Chantrey made himself master of the secret by bribing one of the servants, and having given the required signal, Turner upon one occasion opened the door to him. His vexation upon seeing the trick may be readily imagined, and probably no man but Chantrey could have succeeded in pacifying him. No professional painter could perpetrate such a ruse with impunity. This littleness, combined with so much greatness in the same individual, is one of those anomalies in the history of the human mind which will in all probability never be satisfactorily explained. How a man, who had conceptions so just of truth, sublimity, and beauty, whose mind was ever soaring in those upper regions where the petty weaknesses and foibles of humanity shrink into the most insignificant proportions, could condescend to surround the practice of the noblest of professions with the assumed mystery of a quack doctor or strolling mountebank, we are at a loss to conceive. It is, after all, possible to love art and be a worldling.

Another instance of his reserve was his invincible repugnance to have anything known about his age or his birthday. The consequence is that all statements as to his age are mere conjectures. That marked on his coffin was seventy-nine, but other accounts state that he must have been beyond eighty. He had an old and faithful servant who lived with him for forty-two years up to the time of his death, and who humoured his master's whims with praiseworthy assiduity. It is hardly necessary to say that he never married. The only artists for whom he had much respect or veneration were Reynolds, Girtin, and Stothard. For the works of the latter in particular he had the profoundest veneration. He is stated to have remarked when speaking of him to one of the professors of the academy, "I wish he thought as much of my works as I think of his. I consider him the Giotto of the English school."

One of the strangest instances of his eccentricity was that he never would consent to have his likeness taken, except when a young man, when he sat for one of a series of portraits of members of the Royal Academy. In appearance he was uncouth and burly, looking very like a Norfolk farmer, and without a bit of poetry or sentiment either in his figure or physiognomy. It is said, we know not with what truth, that he was, therefore, afraid that familiarity with his personal appearance would diminish the effect of his paintings. Nevertheless, all his efforts were ineffectual to prevent his likeness being taken. It appears Mr. Smith, of the British Museum, sketched him; Count D'Orsay sketched him at an evening party; and at last Mr. Linnell succeeded in securing a portrait of him in oil, half size, by means of a pardonable stratagem. The Rev. Mr. Danniell, an intimate friend of the great artist, invited him frequently to dinner. Mr. Linnell, too, was always present; and by a series of sketches taken part upon his thumbnail and part upon pieces of paper, was at length successful in securing a very striking likeness on canvas. It was afterwards sold to a Mr. Burch, a gentleman living near Birmingham, for two hundred guineas. Another was secured by Mr. Charles Turner, an intimate friend of the great artist, in a somewhat similar manner, by a number of sketches made at different times. The result was an excellent portrait in oil.

The opinions entertained regarding Turner and his works by the world of art, and every other world, are, of course, as in the case of all other great men, and particularly of all great painters, various and conflicting. But probably few men have received a greater share of contemporary praise, and upon none have the arrows of censure fallen so lightly. It is not always that a prophet is honoured in his own country, nor yet in his own age. Great men have sometimes outlived calumny, misrepresentation, and ignorant depreciation of their works, but oftener by far have they been outlived by them. It is only lapse of time, patience, the death of narrow prejudices, and paltry interests, and rancorous jealousies, that can remove the mist and obscurity which too often surround great men and great deeds during the lives of the owners and doers. It is the way of the world to render justice only when the injured are beyond the reach of reparation, and to pay merited tributes only to the dead. And in matters relating to art, though the standard of excellence be none other than absolute truth, yet the organs by which we receive our impressions of that standard are so liable to deceive us, are so imperfect and so different in different men, that all never have a similar opinion as to the merits of any work which appeals to the external senses only, to stamp it as faithful to its object and design. Turner was not exempt from the evil consequences which flow from all these wrongs and misconceptions. Though he was early celebrated as a painter of wild and vigorous imagination, the admirers of the old masters denounced him as an innovator; and Wilkie, who associated tone with great depth and force, thought Turner was getting into "a weak, vapid manner of painting." The public for a long time neither understood nor appreciated him. His "Polyphemus deriding Ulysses" was sneered at; and so were many others of the finest but least *regular* of his works. But it soon became evident that he was one of those men for whom rules were never made, but who make them for themselves. He had the utmost confidence in his own powers, and the fixed determination that his excellencies, whatever they might be, should come from sources entirely within himself. It was in "Van Tromp returning after the battle, off the Dogger-bank," and the two first of the series of "Venetian Views," that he fully displayed his wonderful mastery of all the tints and shades and shapes of atmospheric phenomena, glancing water, and many coloured architecture, and placed himself at once above the reach of criticism. After this the reaction in his favour was instantaneous and violent. He was caressed and admired by all. His very faults were looked upon merely as the pardonable eccentricities of genius. A "Graduate of Oxford" wrote a book upon "Modern British Painters," and openly declared that no words which he could command, could express his admiration of Turner's works, and every one of his morals, canons, and precepts are pointed, illustrated, and enforced by reference to them. Much of what he, as well as everyone else, said of the artist and his works, was true and just, and much was but the froth of popular exaggeration. But let it remain on record as a warning to all hero and idol worshippers, that Turner declared that the Oxford Graduate "knew more about his paintings than he did himself, and that he put things into his head, and pointed out meanings in them, that he never intended."

It has been doubted by some whether all this fame and applause was not too great to be lasting, and whether the calmer judgment of posterity will not reverse the decisions of contemporary criticism. But of that there can be but little fear—

"A thing of beauty is a joy for ever; its loveliness increases,
It will never fade into nothingness."

great parsimony he amassed a fortune of £100,000; and whatever opinions might be entertained during his lifetime of his miserly habits, since his death it must be acknowledged, that at least he did evil that good might come. His whole property he left for the foundation of almshouses for the benefit of unfortunate and meritorious artists, and directed that



J. M. W. TURNER, R.A. DRAWN BY J. GILBERT; ENGRAVED BY W. J. LINTON.

And in all Turner's works there is enough of the glorious and beautiful to secure to their author an immortality of fame.

He died on the 23rd of December, 1851, in an obscure lodging at Chelsea, where during the latter years of his life he had lived in the strictest retirement, and under an assumed name. By

£1000 should be appropriated to the erection of a monument to his memory in connexion with it. Curiously enough, he excludes water-colour painters from all benefit under this bequest. Forty or fifty of his finest paintings he retained in his own possession till his death, having always refused to part with

them upon any terms. All of these he has bequeathed to the National Gallery, upon condition that within ten years a suitable room be set apart exclusively for their reception. Amongst these are the "Death of Nelson," the "Burial of Wilkie," the "Temeraire," and the "Frosty Morning." The last named picture produced a great sensation when it was first exhibited.

He was buried in St. Paul's Cathedral on the 30th of December, 1851, by the side of Sir Joshua Reynolds, and near Barry and Sir Christopher Wren. The place was his own selection, and a fitter one could not have been chosen, for here he was surrounded by all the masters of English art. The dome of that mighty cathedral looks down upon the last abodes of many of the greatest of our dead, but we venture to say, that not one has done more for the best and truest interests of his country, not one has laboured more earnestly and more successfully to fulfil the mission he received from God than Joseph Mallord William Turner.

The accompanying engraving, which is taken from one of Turner's paintings—"The Mouth of the Humber, a storm approaching at sunset" — illustrates his peculiar style better than any other we know. The murky, blackening clouds, the water rising into foam, the castle and town in the distance, and the last rays of the setting sun streaming half-gloomily through the gathering storm, are all portrayed in Turner's best style, and well exemplify the accuracy of his observation of atmospheric phenomena. Our engraving, by W. J. Linton, is a faithful rendering of the original.



THE MOUTH OF THE HUMBER. ENGRAVED BY W. J. LINTON, FROM A PAINTING BY TURNER.

THE STEREOSCOPE.

"This simple and remarkable instrument produces effects altogether novel. Allow me to place it in your hand, bring its two glasses to your eyes, and then favour me with the result."

"I see with the greatest distinctness a cube; it appears perfectly solid, and stands out fully from the slab on which it appears to have been placed."

"Just so. Now look again."

"Why, that is a globe, a complete sphere, unlike any drawing or engraving I ever beheld, and looking as if, were the board on which it stands but slightly tilted, it would immediately roll off."

"Exactly. The instrument is one of the many deeply interesting inventions of Professor Wheatstone, and though described by him in 1838, is only now, strange to say, attracting the attention that is due to so original and ingenious a contrivance. It is called "The Stereoscope," from two Greek words meaning *to see* that which is *solid;* and how completely it produces such effects, you are now fully persuaded. But I will ask you to look at a few more objects. How, for instance, might that one be described?'

"Certainly as a splendid geranium in a garden pot, from which the noble plant stretches itself out in every direction, while its flowers are in their highest beauty. It is the very thing itself; and it seems as if I could put my hand in among the branches and leaves, and gather any one of the rich scarlet blossoms which I chose to select."

"I have not the slightest doubt of it. Here is another object."

"That is a piece of sculpture in high relief. That aged woman is pointing out the young one's fortune, according to the old superstition, in the grounds of the tea cup. How beautifully solid the cup and the left hand that holds it appear, while no less so are the body and the face, and the right hand with the raised forefinger pointing to the imaginary omen. Equally perfect is the form of the young woman whose back is towards me, and whose head and face are slightly turned that she may curiously pry into this supposed disclosure of the coming time. But every part is equally good; it appears to me as a piece of sculpture, in high relief, beautifully executed. Have you anything more to show me

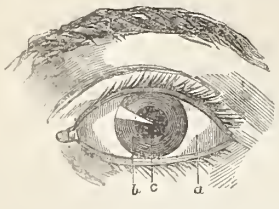
"Yes, but only one, though you will suppose correctly that objects might be indefinitely multiplied."

"Astonishing! It is a family scene, the very counterpart of life. The father is seated away from the wall, each part of his form having on it the exact degree of light and shade, so that the body advances beyond the face, and the legs beyond the body, and the left leg beyond the right over which it is cast; and even the foot, which is protruded, is perfectly natural. The mother, too, is as completely represented, while the child sits in her lap with a distinctness which I never saw equalled. No less striking in their way are all the accessories. The table appears the nearest, standing out with all the solidity of rosewood or mahogany; the work-box, with its inlayings, its open top, its satin lining, seems a little retired; and just behind it is a vase of flowers, all distinct as they are in beauty and fragrance. Most assuredly, I never before saw such objects in a glass; their size is the only drawback to the impression of their absolute reality."

The reader, who has had the opportunity of over-hearing this conversation, will probably feel some curiosity to know how effects so novel and astounding are produced. We proceed, therefore, to gratify this natural and proper feeling, with the remark, that it is absolutely necessary to glance, primarily, at the physiology of that most amazing of all optical instruments—the human eye, at least so far as the visual power is concerned, in order to the right appreciation of the stereoscope.

The white of the eye (fig. 1.) called the *sclerotica*, an opaque substance *a*, has the *cornea* fixed in it, like a glass in a watch-

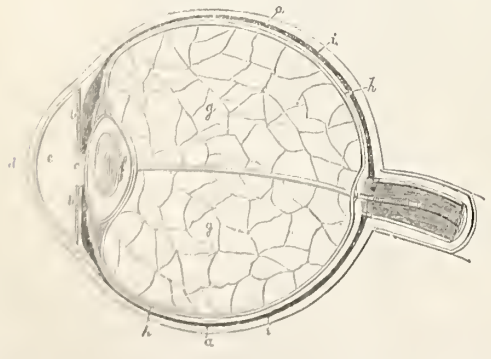
Fig. 1.



case, which also is transparent and colourless, and covers in *b* and *c*. The *iris b*, is the coloured circle which surrounds the *pupil*, *c*, varying in different persons, so that it is sometimes hazel and at others black or grey, and is an opaque curtain in the inner chamber of the eye. The pupil in the centre of the iris may be so enlarged or contracted as to admit a larger or smaller stream of rays, according to the intensity of the light. The same letters are applied to the same parts in fig. 2.

Within the cornea *d*, is a small chamber filled with the *aqueous humour*, a transparent liquid, *e*. Behind this is a substance in the form of a double convex lens, which contains

Fig. 2.



another transparent liquid, *f*, called the *crystalline humour*. At the back of this lens is the *vitreous humour*, *g*, distending the eye into its spherical form, so that it may freely move in its orbit. A straight line passing through the centres of the cornea and the ball of the eye, is called the *optical axis*, or the axis of the eye. The play of the eye-ball is of considerable extent. For the optic axis can turn in the horizontal plane through an angle of 60° towards the nose, and 90° outwards, giving an entire *horizontal* play of 150°. In the vertical direction it is capable of turning through an angle of 50° upwards and 70° downwards, giving a total *vertical* play of 120°. The arrangement of muscles is like all the arrangements of the all-wise and beneficent Creator, in the structure of the human eye, exquisitely simple and beautiful, and absolutely perfect. One muscle raises the eye, another moves it outwards towards the temple, a third directs it towards the nose, while a fourth restrains the rest within due bounds, and keeps the visual power steadily fixed on the object to be contemplated.

The *retina*, *h*, an expansion of the optic nerve, is a most delicate membrane, and the immediate seat of sensation. And the *choroid*, *i*, originating around the entrance to the optic nerve, which passes through it before it expands into the retina, consists almost entirely of a multitude of minute vessels, curiously interlaced and communicating freely with each other. The outer surface of the choroid is somewhat rough and flocculent, while the inner, on which the retina is expanded, is delicately smooth and even; and both are abundantly covered with a pigment, which is secreted by every part of the choroid, and pervades its loose and porous texture.

With this understanding of the structure of the human eye, there will be no difficulty in conceiving aright of its usual action. The light proceeding from any luminious object, as the sun, a lamp, or a candle, and falling upon that part of the eye-ball which is left uncovered by the eyelids, passes through the pupil, and being refracted by the humours within, and finally penetrating to the retina, are received by it, and produce there an illuminated image of the luminous body.

The truth of this representation may easily be brought to the test. For if the eye-ball of an ox recently killed have the hinder part dissected, so as to lay bare the choroid, and a lamp be placed at a distance of eighteen or twenty inches before it, an inverted image of the candle will be visible through the retina, as if it were produced on a plate of ground glass or on oiled paper. The images of objects painted on the retina, therefore, give rise to the perceptions formed by the mind, of which the eye is an exquisitely constructed and wonderfully ordered instrument. How extremely minute these images are appears from the fact, that, supposing the eye to be an inch in diameter, and the sails of a windmill, six feet in diameter, were seen at the distance of 4000 fathoms, its picture on the retina will be the one-eight-thousandth part of an inch, which is the six hundred and sixty-sixth part of a line, or about the sixty-sixth part of a common hair! To take another instance, the figure of a man five feet ten inches in height, seen at a distance of forty feet, produces an image on the retina the height of which is about the one-fourteenth part of an inch. The face of such an image is included in a circle whose diameter is about one-twelfth of the height, and, therefore, occupies on the retina a circle whose diameter is about the 1-170th part of an inch; yet within this circle the eyes, nose, and lineaments, are distinctly seen. The diameter of the eye is about one-twelfth that of the face, and, therefore, though distinctly seen, does not occupy upon the choroid a space exceeding the 1-4,000,000th part of a square inch.

It has already been stated that the images of objects appear *inverted* on the retina, and a knowledge of this fact has led to the inquiry, why do not visible objects appear upside down? "The answer to this," says Dr. Lardner, "appears to be extremely simple. Inversion is a relative term, which it is impossible to explain or even to conceive without reference to something that is not inverted. If we say that any object is inverted, the phrase ceases to have meaning unless some other object or objects are implied which are erect. If all objects at a time held the same relative position, none can be properly said to be inverted; as the world turns upon its axis once in twenty-four hours, it is certain that the positions which all objects hold at any moment are inverted with respect to those which they held twelve hours before, and to those which they will hold twelve hours later; but the objects as they are contemplated are always erect. In fine, since all the images produced upon the choroid hold with relation to each other the same position, none are inverted with respect to others; and as such images alone can be objects of vision, no one object of vision can be

inverted with respect to any other object of vision; and, consequently, all being seen in the same position, that position is called the erect position."

Another peculiarity in visual arrangements has suggested the question, "As we have two eyes, why do not objects appear to us *double?*" In answer to this, Dr. Arnott replies, "We shall only state the simple facts of the case. As in two chess-boards there are corresponding squares, so in the two eyes there must be corresponding points, and when on those points a similar impression is made at the same time, the sensation or vision is single; but if the impression be made on points which do not correspond, owing to some disturbance of the natural position of the eyes, the vision becomes double."

A clearer explanation of the phenomenon may, however, be given, for it is easily shown that any near object is seen in two different modes by the two eyes. If a thin book be held up in such a manner that the back shall be exactly in front of the nose, and at a moderate distance from it, it will be observed that by closing first one eye and then the other, that the perspective view of it differs, according to the eye with which it is beheld. With the right eye, the right side will be seen very much fore-shortened, a corresponding view will be gained of the left side, but the lengths of the different lines will be found to vary in the different views. On looking at either of these views singly, the only notion of solidity that can be acquired is that to which the mind is led by the association of such a view with the *touch* of the object it represents.

That each eye supplies an image, and that the coalescence of the two gives to the mind the perception of *solidity*, is demonstrated by the stereoscope. Within it are placed two plane mirrors, inclined with their backs to one another, at an angle of 90° degrees, and thus resemble the retinæ of the eyes, ready for any impression to be made on them by objects brought within the range of vision. For these there is a shelf in the lower part of the stereoscope; just above it is a door for the full admission of light; and on it are placed the drawings or daguerreotypes to be used (fig. 3). These are always double; one being a representation of the object at the

Fig.

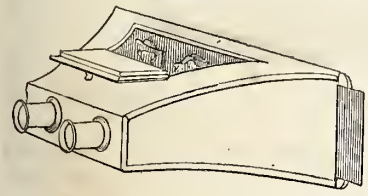
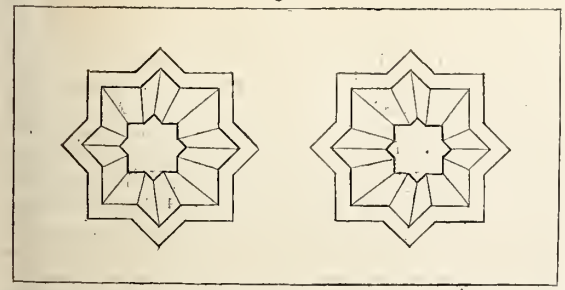
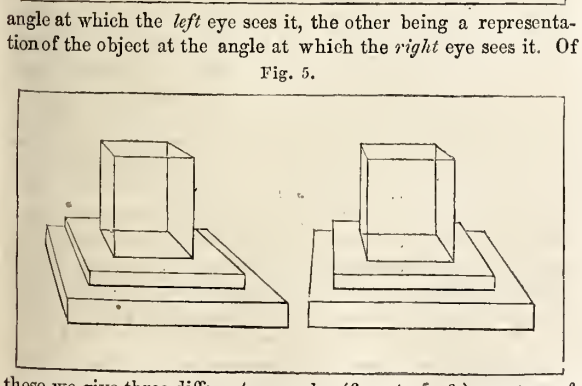


Fig. 4.



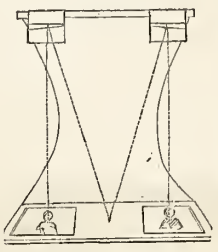
angle at which the *left* eye sees it, the other being a representation of the object at the angle at which the *right* eye sees it. Of

Fig. 5.



these we give three different examples (figs. 4, 5, 6,) any two of which if placed in a stereoscope, will present to view one figure. Accordingly they are so arranged that the two representations fall on the corresponding parts of the two retinæ, in exactly the same manner as the two images formed by the solid object itself would have done; and hence the mind perceives, not a single representation of the object, nor a confused union of the two, but a body projecting in relief—the exact counterpart of that from which the drawings were made. In fig. 7, the principle of the stereoscope is shown: the two lenses are exhibited through which the eyes look at the two representations, as well as the converging of the optical axis.

Fig. 7.



When *similar* images, differing to a certain extent in magnitude, are presented by means of the stereoscope to corresponding parts of the two retinæ, a single object, intermediate in size between the two monocular or single-eyed pictures is given. Were it not for this, objects would be seen single only when the optic axes converge directly forwards; that is to say, when the object is equally distant from the two eyes, for it is only then that the images on the retinæ can be of equal size, the size of the image being dependent on *the angle* under which the object is seen, and this being less as the object is more distant. As our conviction, then, of the solidity and projection in relief of bodies depends on a *different perspective* image of each of them being presented to each retina, and as this can take place only when the axes of the eyes are made *to converge to them*, it follows that when objects are at such a distance that in regarding them the *optic axes are parallel*, their images on the choroid will be exactly similar, and the idea conveyed to the mind will be the same as if they were seen with one eye only. Hence, when two perfectly *similar* pictures of an object are viewed in the stereoscope, although they coalesce, they appear but as painted on a flat surface.

Acquainted with these facts, we can easily understand why the artist is unable to give a faithful representation of any near solid object, that is, to produce a painting that shall not be readily distinguished by the mind from the object itself. When the painting and the object are seen with both eyes, there is a great difference in the two instances. In the painting *two similar* pictures are projected on the choroid, but in that of the solid objects the pictures are *dissimilar;* there is, therefore, an essential difference between the impressions on the organ of sensation in the two cases, and, consequently, between the perceptions performed by the mind. The painting cannot, therefore, be confounded with the reality; but when the stereoscope combines the two *dissimilar* images, there is the sensation which gives rise to the perception by the mind of perfect solidity.

We have only space to refer to one other interesting question, which is thus stated and answered by Mr. Wheatstone:—

"How happens it, then, it may be asked, that persons who see with only one eye form correct notions of solid objects, and never mistake them for pictures? And how happens it, also, that a person having the perfect use of both eyes, perceives no difference in the objects around him when he shuts one of them? To explain these apparent difficulties it must be kept in mind, that although the simultaneous vision of two dissimilar pictures suggests the relief of objects in the most vivid manner, yet there are other signs which suggest the same ideas to the mind, which, though more ambiguous than the former, become less liable to lead the judgment astray in proportion to the extent of our previous experience.

"The vividness of relief arising from the projection of two dissimilar pictures, one on each retina, becomes less and less as the object is seen at a greater distance before the eyes, and entirely ceases when it is so distant that the optic axes are parallel while regarding it. We see with both eyes all objects beyond this distance precisely as we see near objects with a single eye, for the pictures on the two retinæ are then exactly

similar, and the mind appreciates no difference whether two identical pictures fall on corresponding parts of the two retinæ, or whether one eye is impressed with only one of those portions. A person deprived of the sight of one eye sees, therefore, all external objects, near and remote, as a person with both eyes sees remote objects only; but that vivid effect arising from the binocular vision of near objects is not perceived by the former; to supply this deficiency he has recourse unconsciously to other means of acquiring more accurate information. The motion of the head is the principal means he employs. That the required knowledge may be thus obtained will be evident from the following considerations. The mind associates with the idea of a solid object every different projection of it which experience has hitherto afforded; a single projection may be ambiguous, from its being also one of the projections of a picture, or of a different solid object; but when different projections of the same object are successively presented, they cannot all belong to another object, and the form to which they belong is completely characterised. While the object remains fixed, at every movement of the head it is viewed from a different point of the sight, and the position on the retina consequently continually changes.

"Every one must be aware how greatly the perspective effect of a picture is enhanced by looking at it with only one eye, especially when a tube is employed to exclude the vision of adjacent objects, whose presence might disturb the illusion. Seen under such circumstances from the proper point of sight, the picture projects the same lines, shades, and colours on the retina, as the more distant scene which it represents would do were it substituted for it. The appearance which would make us certain it is a picture is excluded from the sight, and the imagination has room to be active."

Fig. 5.

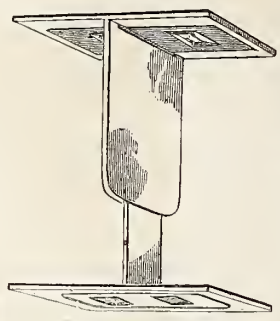
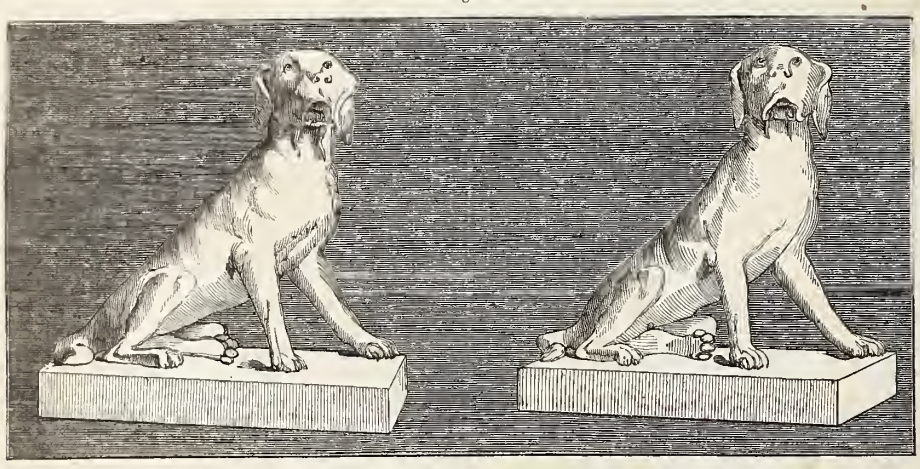


Fig. 6.



The illustrations to this article are copied from the instruments and the objects accompanying them, manufactured by Messrs. Watkins and Hill, Charing-cross. They have also constructed a very simple and cheap stereoscope, of which fig. 8 is a diagram.

THE LADIES' DEPARTMENT.

EMBROIDERED BLOTTING CASE.

Materials.—Dark stone-coloured kid leather, or black velvet, with the following colours in Berlin silks. In *ombré* silks, olive-green, blue-green, and yellow-green, pink deepening into scarlet, and also into crimson, and blue. In plain silks, 1 black, 2 very light shades of pink, 6 shades of yellow-green, maize colour, 4 shades of violet, and 4 of yellow (the heart's-ease tint).

The design of this blotting-case consists of a centre bouquet of roses and fuchsias, with four corner pieces, varying from each other, one being a blue convolvulus, another heart's-case, the third a thistle, and the fourth, ears of corn. Our pages do not, of course, admit of the blotting case being given of the full size.—The sprays are, however, of the dimensions to be actually worked, care being taken to place the centre one exactly in the middle, and the others at the corners, allowing a margin of an inch for the border, all round. The sides only of the blotting case are embroidered.

For the manner of preparing and marking the work, we refer our readers to the instructions already given in embroidery; but a brief description of the manner of working these flowers may still be acceptable.

The Centre Group.—The rose and buds are worked in crimson *ombré* silk, with the addition of the pinks in the lightest petals of the flower. The stitch used is the ordinary embroidery stitch, and the engraving represents accurately the direction it should take in every part. It will be observed that the centre sepal of the calyx of each rosebud, as well as the corolla, is worked in stitches which take nearly a perpendicular direction, whilst the *outer* sepals are done in the contrary way. This is important; as it gives an appearance of roundness to the buds which embroidery on a flat surface could not otherwise present. A line of half-polka stitch, in the darkest shade, will also be observed to mark the division in the full-blown flower. The foliage of this group is entirely in the yellow-greens; the lower part has each leaf of one single shade, with the veinings in a darker, the veinings of the darkest leaf being in black silk. It is a rule in embroidery, (as in nature itself,) that where several leaves are on a spray or stem, the lower ones are the darkest, and each one is of a lighter tint, till the one at the point is in the most delicate shade. This must be particularly observed in working the rose-leaves. The dark leaves are at the lowest part of the bouquet, and in the centre, whilst those on each side become gradually lighter. The *ombré* silk is used for the leaves of the right hand rosebud. The thorns are done in the very lightest green, and are formed by a single short stitch. All the very small leaves are of a light shade, but should not be worked in the same one. The reason of this is obvious; the small leaves not having arrived at maturity, have not yet acquired the depth of tint of the full-grown. The foliage of the fuchsias is done in the blue-green *ombré* silk; the stem, as in that of the rose, being darkest at the base. The flowers are in the scarlet *ombré*, the divisions between the petals marked by a dark thread. The stamens are in maize silk, in half-polka stitch, each finished with a French knot.

The Thistle Spray.—Each leaf in one shade of the yellow-

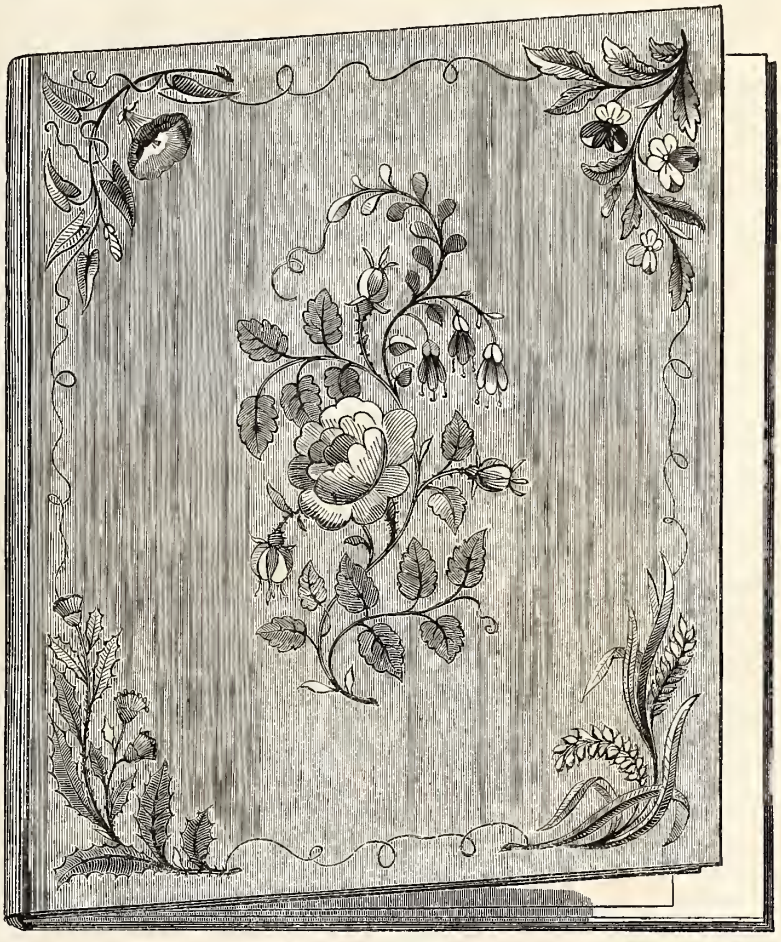
green, the largest in the darkest, veined with black; the others in pairs, veined with silk one shade darker. The stem *ombré*, dark at the base, and very light where the flower joins on. The flowers should be worked in a succession of lines in half-polka, each terminated by a French knot. For these use the shades of lilac. The calyx in very light green. The prickles are done in very short stitches with olive-green.

The Ears of Corn.—The lower ear entirely, with its stem in light maize colour; the other in ombré olive, with the beard in maize. Some of the leaves in olive, and some in blue-green.

The Spray of Convolvulus.—The foliage entirely in blue-green ombré. In working the leaves great care must be taken to keep the edges perfectly smooth. The convolutions of the bud are represented by lines of half-polka stitch, crossing the long-embroidery stitches in which it is worked. The inner part of the cup of the flower is worked in the faintest pink, fading into white, and is further marked by a line of black, dividing it from the darkest part whilst it blends with the lighter.

The Heart's-ease.—For the foliage use *ombré* yellow-green; for the flowers and buds the shades of yellow and lilac. The green should be in short shades, and the observations we made on the manner of using them for the embroidered note-case (Illustrated Exhibitor, page 16), apply equally here, both to this group and the last. The flowers are of that kind of which the superior petals are purple and the others yellow; they are worked in the usual way.

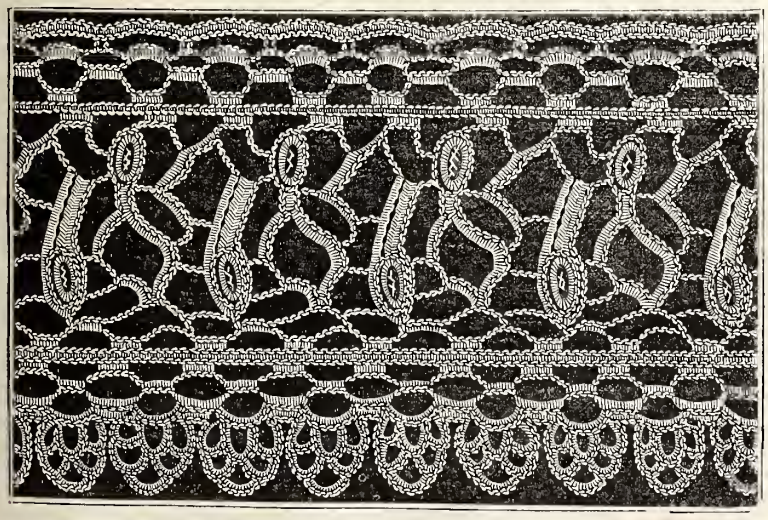
The instructions given for arranging the light and dark leaves, stems, &c., in the bunch of roses, apply equally to all other foliage not worked in *ombré* silks. Let us add that a specimen of the natural flower, placed before the artist who is embroidering in colours, is at all times a most valuable aid in working. What guide so good and true as Nature herself!



The blotting-case should be made up at an ornamental book-binder's, and fitted with white watered silk and gold letters.

CROCHET POINT LACE.

Materials.—Crochet Cotton, No. 20, and Embroidery Cotton, No. 70, Crochet-hook, No. 24, and a common sewing needle.



This style of crochet, of which a great deal is done in Ireland, is a very fair imitation of Guipure lace; not, of course, possessing the intrinsic value of that beautiful and costly fabric, but, nevertheless, being a very pretty addition to the toilet; and as such, we hope, the design will be acceptable to some of our friends to whom crochet is more familiar than point lace work.

The piece before us is done in two parts, which are afterwards joined; the lines for commencing them being the chains marked *a* and *b*. At line *a* the whole edge is done, and two open rows within the line; at *b* the outer part is done, and one line within, whilst the whole intermediate space is one continuous piece of work, connecting the two sides together. The raised parts are done with the embroidery cotton and a sewing needle.

A. Make a chain of any length required, provided the number of stitches can be divided by 31, and leave five or six over for the end. On this chain work a row of s.c.

1st row of the edge, working on this s.c. row. × 5 s.c., 15 ch., miss 9, × repeat. End every row with a few s.c.

2nd: Begin with two or three s.c., and a few chain, × 7 s.c. under loop, 10 ch., × repeat.

3rd: S.c. on the s.c. at the beginning, and under the few chain, × 10 ch., 9 s.c. under chain, × repeat.

4th: S.c. on every s.c., and 12 s.c. under every loop.

5th (to set the vandykes): × 5 s.c. on the 5 centre of the 9 s.c., 9 ch., miss 4, s.c. under 5th, 9 ch., miss 5, s.c. under 6th, 9 ch., miss 4, × repeat.

6th: 3 s.c. on the centre of 5, work under the first and second loops, in s.c., so as to completely cover them, and do half the third in the same way. Turn the work on the wrong side; 8 ch., s.c. at the point of the centre loop, 8 ch., s.c. at the point of the first. Turn on the right side, and s.c. under the last loop of 8 ch., and under half the next. Turn the work on the wrong side, 8 ch., s.c. on the centre of the finished loop of 8; turn the work on the right side, s.c. under the last loop, and on the two remaining halves. One point is now done. Repeat.

Now, on the original chain do a row thus: × 5 s.c., 17 ch., miss 10, 5 s.c., 17 ch., miss 11, ×.

2nd: × 7 s.c. under a chain, 9 ch., × repeat.

This piece is now ready for joining, lay it aside and begin *b*, making a chain divisible by 28, with a few over. Work on it one row of s.c.

2nd (worked on the chain): × 5 s.c. 17 ch., miss 9, × repeat.

3rd: × 8 s.c. under loop, 10 ch., × repeat.

4th: × 8 s.c. under loop, 8 ch., × repeat.

5th: × 2 d.c. under loop, 14 c.h., × repeat.

6th: S.c. on every stitch.

This is the outer row. Now work on the s.c. row, after the chain.— × 4 s.c., 17 ch., miss 9, 5 s.c., 15 ch., miss 10, × repeat.

The two strips being thus done, the centre work, which connects them, is the next part of the process. 4 s.c. on the four first stitches of the last row, and 3 more on the first three of 17 ch.; 20 ch., s.c. under the opposite loop of the piece *a;* turn 20 s.c. under the 20 ch.;—this will not cover it entirely; × 11 ch., s.c. under the loop you began from; turn 6 s.c. under the 11 ch.; 11 ch.; miss 12 of the 20 s.c., 4 s.c. on the next 4. 13 ch., s.c. under the next loop on the *a* side; turn 8 s.c. under the chain of 13; 11 ch., 12 s.c., under the 6 s.c. and the adjoining loop of 11; 6 s.c. under the loop of 17 ch. (*b* side.) Now begin the thick part, on which the satin stitch is afterwards done, working direct from *b* line to *a*, and catching up the various parts as you proceed. Turn 12 ch., 7 s.c. under 11 ch., 8 s.c. on 8 s.c.—2 s.c. under loop. Turn s.c. back on the 15, and 8 more under the chain of 12. Turn s.c. back on all these—2 s.c. under loop at the end. Turn * s.c. back on all. 9 ch., s.c. under the next loop on the *b* side. Turn 7 s.c. under 9 ch., 12 ch., 7 s.c. on 7 near the end of the thick part on the line of s.c. marked *, leaving the last three stitches near the loop. 9 ch., s.c. under the next loop on the *a* side. Turn 7 s.c. under chain of 9; 8 ch. s.c. under chain of 12, and on 7 s.c. to the loop at *b*. S.c. under the loop. Turn 8 s.c. on last 8. Turn 8 s.c. on last; s.c. under the same loop as before. Turn 8 s.c. on the last 8, and five more; 13 ch., 4 s.c. under 4 last of 8 ch., s.c. under loop at *a*; 20 s.c. (on the 4 s.c., under the 13 ch., and on 3 last of 5 s.c. × repeat between the crosses throughout the length of the lace.

For the Satin-stitch. With a double needleful of embroidery thread, trace round the part to be worked, on the right side; just catching the thread in the crochet here and there. Go round and round this until there is a thickness of at least 30 threads, over which work in close button-hole stitch. It is not necessary to take the needle through the crochet in doing the button-hole, but only under the thickness of threads.

Two pieces of raised work occur in every repetition of the centre—one being near each edge.

INSTRUCTIONS IN FRIVOLITE.

Tatting, or *frivolité* (as the French term it), is one of the simplest kinds of needlework; and, as requiring but little eyesight, and being, moreover, very strong and durable, it has considerable claims to the favourable attention of the accomplished *femmes d'aiguilles*.

For some years it was quite out of date, and we owe its revival to some very beautiful specimens of the work sent to the last French Exposition. From that time it became a fashionable employment both in France and England, under the appropriate name of *frivolité;* and the Irish schools, the pupils of which institutions greatly excel in this work, had some very delicate pieces of *frivolité* in our own Exhibition. Our readers will probably remember that we drew particular attention to them in our notices of the Irish work, accompanying our observations by engravings of several of the articles. It now, therefore, only remains to us to give our readers the very simple instructions requisite for doing this pretty work, before furnishing them with receipts for novel designs in it.

The implements used in tatting are a shuttle and a pearling-pin. The former has hitherto been made of bone or ivory; but this being too clumsy for the delicate work now fashionable, a steel shuttle has been manufactured at our suggestion, by Messrs. Boulton and Son, of Redditch, which is far better adapted to all the *fine* kinds of work. The pearling-pin is a gilt pin, attached by a chain to a ring which passes over the thumb. A sewing needle is also sometimes used in forming the patterns.

Stitches.—Only two stitches are used in tatting—the French and the English; and these are generally made alternately, and thus united are termed a *double* stitch. The shuttle being filled with cotton, is held tightly between the thumb and first and second fingers of the right hand, about three-quarters of a yard of cotton being unwound. Take up the piece of cotton a few inches from the end, between the thumb and forefinger of the left hand, and extending the other fingers, pass the thread round them in a circle, holding it still with the thumb and forefinger.

French Stitch.—Holding the hands as already described, throw a loop of the thread which goes from the left hand to the shuttle in the right, over the knuckles of the first and second fingers of the former; slip the shuttle *upwards*, under the loop round the fingers, and draw it out to the right with a jerk, when a loop is formed on the thread round the fingers. Hold the shuttle steadily out to the right, keeping the thread quite tight, while you slip the loop just made up to the finger and thumb, and hold it there.

English Stitch.—Instead of throwing the thread over the knuckles, let a loop of it drop down in front of the left hand, and pass the shuttle *downwards* under the thread which is stretched round the fingers. Draw out the shuttle as before, and pull the loop up.

These two stitches are generally done in rotation. When the given number is completed, the thread is drawn up, either quite tight, or nearly so, and a *loop* of tatting is then done.

The pearling-pin is used to make the little spots on the edge of the loops, termed picots. The pin is held between the finger and thumb of the left hand, and parallel with the worked stitches: when a picot is to be made, the thread which surrounds the fingers is passed over the pin, then so many stitches more are done, and again it is passed over. The pin is withdrawn just before the loop is pulled up, and, being suspended by the chain, hangs down from the thumb.

To Join Two Loops.—A picot must be made on the first, where the join is to be, and when the worker comes to the corresponding part of the *second*, the thread round the fingers must be drawn through the loop of the picot sufficiently to allow the shuttle to pass through. The thread must then again be stretched over the fingers, and the join is complete.

Loops joined in this way are much stronger than when they are unconnected.

We must beg our friends to refer to these instructions, when designs in *frivolité* are given, should they happen to be unacquainted with the art.

THE NEGRO CAREY.

John Thomas Carey, an American negro, was for a long number of years the faithful and attached servant of the founder of the republic of the United States. Born in the year 1729, at Mount Vernon, the property of Washington, he had been reared by the mother of the illustrious patriot, that woman of admirable simplicity, who replied to the praises which Lafayette was lavishing upon her son, when he so nobly laid aside the honours of the supreme power with which his fellow citizens had invested him, "I am not surprised," said his mother, "at what George has done, for he has always been *a very good boy.*" Every one knows that Washington of his own accord liberated the blacks on his property before calling for the emancipation of the slaves

by the American legislature. Carey, after receiving his liberty on the day on which the independence of the United States was proclaimed, voluntarily attached himself to the person of Washington, and continued by his side throughout the whole of the war of independence, and subsequently up to the death of the American hero. After attaining the venerable age of one hundred and fourteen years, he died in 1843, and was buried at Greenleaf's Point, near Washington.

Carey was of middle size, and possessed an agreeable polish of manner, which bore no marks of his former condition. Lafayette spoke of him as being a man of the most upright disposition, and remarkable for a genuine simplicity, which, without in any way marring the true nobleness of his character, accorded so well with his humble condition in life.

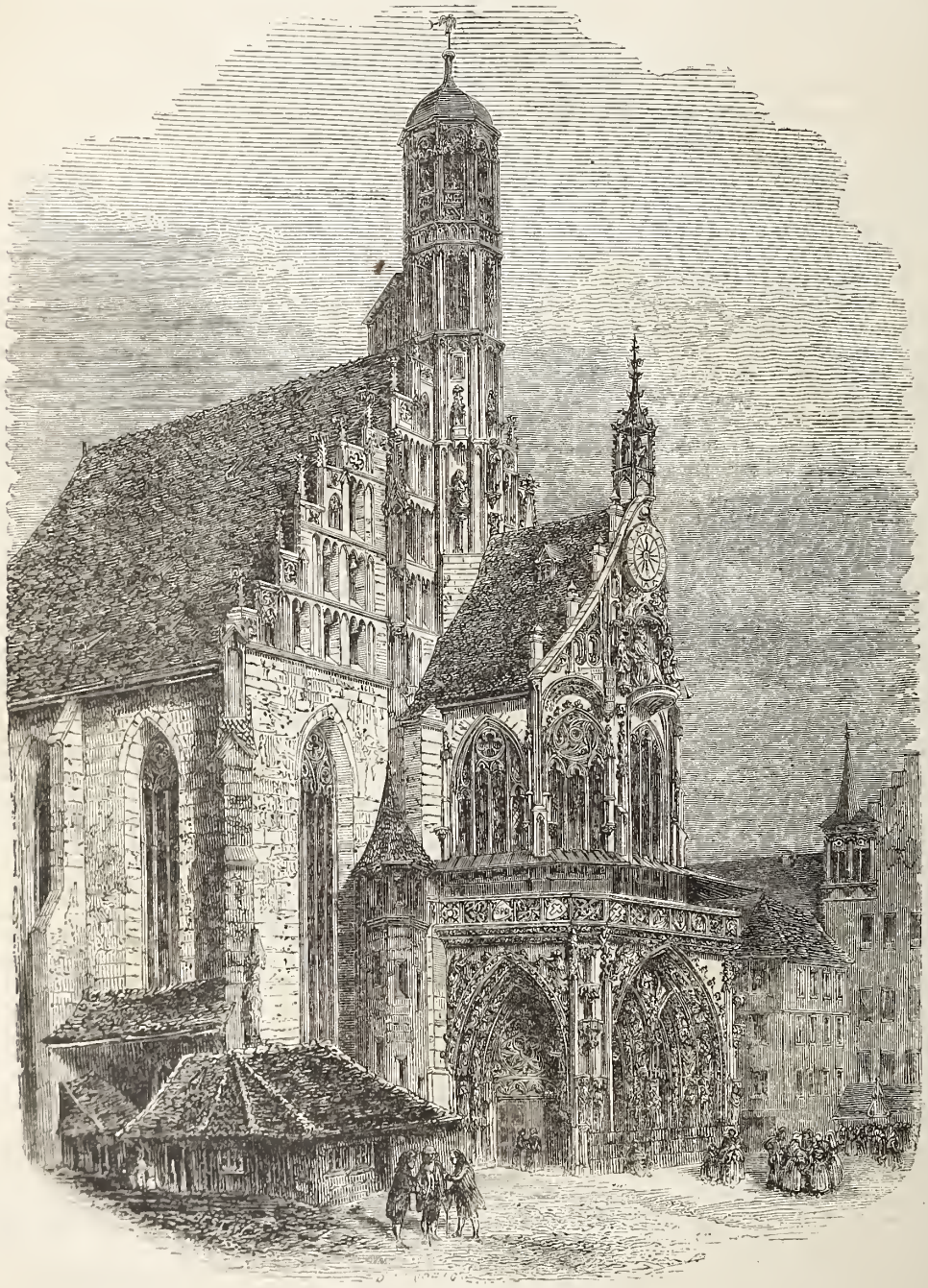
The portrait of this excellent man accompanied that of Washington, on foot, which was published in 1788. Carey is seen in the back ground, holding the reins of the general's horse, while his master, who has the act of independence in his hand, is meditating on the plan of a campaign. A similar-sized portrait of Lafayette, also on foot, was published at the same time.

NUREMBERG.

Nuremberg (or, as it is called in Germany, Nürenberg), next to Munich, the capital, is the most populous city in Bavaria, and was formerly one of the most flourishing members of the Hanseatic League. This fine old city, which so completely represents the architecture of the fifteenth century, stands in a sandy but fertile plain, at an elevation of about one thousand feet above the level of the sea. It is divided by the river Pregnitz into two unequal parts, the smaller and northern of which is called the Sebald-side, and the southern and larger the Lawrence-side,—each deriving its name from its principal church. The river forms three islands within the walls, which are connected with each other and the city by seven stone and nine wooden bridges, and one suspension bridge which was begun in 1824. Though Nuremberg cannot properly be considered a fortified town, owing to the neglected state of its defences, it is surrounded by feudal walls and watch-towers, and these are enclosed by a ditch one hundred feet wide, and fifty feet deep, lined throughout with masonry. Its arched gates are flanked by four massive cylindrical towers, no longer of use as fortifications, but picturesque in a high degree, and serving to complete the coronet of antique towers which encircle the city, as seen from a distance. On entering its old-fashioned and irregular streets for the first time, the stranger might fancy himself carried back to a distant century, as he gazes at its quaint gable-faced houses, and other remains of mediæval architecture which surround him on every side. Its churches and other public buildings are singularly perfect, having escaped unharmed the storm of war, sieges, and even of the Reformation, whose doctrines its inhabitants were amongst the first to adopt. Its private buildings, including the palace-like mansions of its patrician citizens and merchant nobles, are equally well preserved, and many of them are still inhabited by the families whose ancestors originally built them. Though constructed with narrow but highly ornamented fronts, and acutely-pointed gables, they are often of a large size, inclosing two or three courts, and extending back from one street to another. The circuit within the walls is about three miles and a half; a considerable extent of which space, however, is taken up in squares, and markets, and gardens. One of the most remarkable ancient buildings in this old mediæval town is the fortress called the *Reichfeste*, or imperial castle, which, there is reason to believe, was erected in the tenth century under the Emperor Conrad I., and the care of which was confided in the middle ages to the burggraves of Nuremberg, the ancestors of the house of Hohenzollern. This old castle stands on the most elevated position within the town, and the exterior having received no modern additions, is an excellent specimen of mediæval architecture. A portion of the fortress is fitted up for the king of Bavaria, when he visits Nuremberg, and contains a picture gallery, the paintings in which, however, though numerous, are generally of the most ordinary merit, with the exception of one by Albert Durer. The *Rathhaus*, or town-hall, in the Italian style, is one of the finest in Germany; it is 275 feet wide, and was chiefly built in 1619, but includes the ancient town-hall, dating from 1340. In the latter are the great hall and the council chamber, the walls of the former apartment being ornamented by several oil paintings by Albert Durer, Hirschvogel, and others. Almost all the churches—eight Lutheran, one Calvinist, and one Roman Catholic—are highly deserving of notice for their architecture and the works of art which they contain. That of St. Sebald, which is a fine Gothic edifice, with an elegant choir, built in 1337, has numerous sculptures by Adam Kraft and Veit Stoss, many old paintings and stained glass windows, and the remarkable shrine of the patron saint of the church. This shrine, which still stands in the centre of the church, though the latter is devoted to the Lutheran service, is the masterpiece of the celebrated Peter Vischer, who, with his five sons, was employed on it for thirteen years. "It is a miniature Gothic chapel," says a late writer, whose minute description we borrow, "entirely of bronze, consisting of a rich fretwork canopy, supported on pillars, beneath which the relics of the saint repose in an oaken chest, encased with silver plates. The workmanship is most elaborate. The figures of the twelve apostles occupy the niches around the shrine, and are truly first-rate works of art. Above them are twelve smaller figures of fathers of the Church; while about seventy fanciful representations of cupids, mermen, animals, &c., distributed among flowers and foliage, are scattered over the other parts. The miracles of the saint are the subjects of the bas-reliefs under the coffin. In a niche below, at one end, is an admirable statue of the artist himself, in a mason's dress, and at an opposite end is a figure, equally excellent, of St. Sebald." The church of St. Lawrence, a fine Gothic edifice founded in 1274, is the largest in the town, and is extremely rich in old German paintings. This very handsome building has a tapering spire of Gothic open-work, sixty-four feet in height, executed by Adam Kraft, with a minuteness more commonly bestowed upon ivory than on stone. The church of St. Giles, which was built in the Italian style at the beginning of the eighteenth century, has a fine altar-piece by Vandyck, several very handsome bas-reliefs, and other rich architectural decorations. Near this church is the gymnasium, in front of which the city erected, in 1826, the statue of Melancthon, by whom the institution was founded. The church of St. Clara, which was built in the twelfth century, contains the city library of twenty thousand volumes, with a collection of the works of the reformer just mentioned, and of other controversial works written at the time of the Reformation. The church of the Teutonic Knights, begun in 1784, and the Roman Catholic church of Notre Dame, of which we present our readers with an illustration, are, with those already mentioned, the principal ecclesiastical buildings of Nuremberg. Notre Dame was designed by, and built under the superintendence of, the illustrious brothers Schonhafer, in the middle of the fourteenth century, and during the reign of the emperor Charles IV. It has the square form of the first churches which the Grecks built after the model of the pagan temples. It was not, however, until more than a century after its erection, that the pointed arch was adopted; nor was it till about the same period that the very handsome tower in front of the church was so advantageously added to the building. This exquisite improvement was the work of Adam Kraft, who executed its decorations with the same delicate minuteness which he had displayed on the Gothic spire of the church of St. Lawrence. The same artists likewise adorned the interior of Notre Dame with several exquisite reliefs of the most perfect finish. The church of Notre Dame is thus partly Greek and partly Gothic in its construction, and is hardly surpassed in its decorations by any of the other buildings of a city which is peculiarly rich in the excellence of its ecclesiastical architecture.

Besides the structures now mentioned, Nuremberg has several others not undeserving of notice. Amongst these may be classed its fountains, especially that one called the *Schoner Brunnen* (beautiful fountain), in the great market-place; and a very handsome Gothic obelisk of openwork, adorned with statues of various historical characters. Besides its gymnasium, already mentioned, Nuremberg has a royal and other high schools, several Latin and numerous inferior schools, a polytechnic institution, a high commercial academy, societies of national industry and medical and natural science, together with an agricultural union, and

collections of every description in the arts and sciences. Though considerably declined, it still ranks as one of the chief commercial cities of Bavaria. Its trade consists principally of hardware, turnery, looking-glasses, paper, parchment, iron articles, wooden clocks, musical instruments, engravings, painters' colours and pencils, glass, porcelain, watches, calicoes, carpets, and toys. The trade in these last-mentioned articles, which are chiefly made by the country people in the hilly and wooded district between Franconia and Thuringia, is very extensive and important. Nuremberg has been the birth-place of many distinguished men, among others, the famous painter, Albert Durer, who was born here in 1471; Melchior Pfinzing and Hans Sach, the poets; and Martin Behem, who made the first terrestrial globe. Among the inventions said to have been made here are watches (first called Nuremberg eggs) by Peter Hele; the famous wire-drawing machine by Rudolph; gunlocks by an unknown inventor; the pedal by Heinric Traxdorf; the air-gun by Lobzinger; the clarionet by Denner; and brass by Erasmus Ebner. Owing partly to these inventions, but more to the freedom and industry of its inhabitants, Nuremberg early rose to great eminence as a manufacturing and commercial town. It was, in fact, the continental Birmingham of the middle ages, during a period of which it is said to have had seventy thousand inhabitants. Its name is first mentioned in history in 1050, and it obtained its first charter in 1219 as a free city of the Circle of Franconia celebrated for its industry and commerce, and for its great services to the emperor and empire; it retained its freedom through all the changes made in Germany in 1803: two years later, however, it was annexed to Bavaria by Napoleon at the peace of Presburg, in 1805. Its present population numbers about 45,000, of whom about 3,500 are Roman Catholics, and the great majority of the rest Lutherans.



CHURCH OF NOTRE DAME, NUREMBERG.

JEAN BAPTISTE CHARDIN.

Rome, Florence, and Venice had long been renowned for the triumphs of art before France had even shown that one of her people was capable of anything better than wood carving and engraving, or servile and weak imitations of the great Italian masters. Men were beginning to believe that love for art was not racy of French soil, that her men were too gay and frivolous to display either force of conception or depth of passion; and that whatever excellence they might attain in architecture or manufacturing industry, they had none of the grasp of thought and fire of imagination which make a Titian or a Raphael. The ascension of Francis I. to the throne was the beginning of a new era. This monarch was not more renowned for his chivalrous valour in war than his attention to the arts of peace.



JEAN BAPTISTE CHARDIN.

His court was the resort of the wittiest, the most learned, and the bravest men in Europe. Leonardo da Vinci, one of the first artists of the day, was the intimate friend and constant companion of the king, and his influence was soon perceptible in the efforts of the French artists to achieve something, the originality of which should take from them the reproach of slavish copying, and stop at least some portion of the expenditure yearly made by their own nobility in the purchase of the works of the great masters of foreign countries. Then it was that the French proved their title to be reckoned amongst the faithful disciples of the ancient worshippers of the beautiful in nature. Their progress from this time was rapid, and merely to mention the names of Vouet, Gaspar and Nicholas Poussin, Le Seuer, and Le Brun, will be sufficient to recall a hundred of their triumphs to the reader's mind.

But art in France seems to have had for many years an abhorrence of low life, of aught that was not allied to rank or fashion, the romance of ancient mythology, and the glories of natural scenery. The homely simplicity of rustic life, the toils and struggles of the poor and lowly were deemed unworthy the illustration of a cunning hand. Watteau has handed down to us striking representations of gay pic-nics in lordly forests, of capricious belles and handsome cavaliers promenading by moonlight, and titled shepherds and shepherdesses dancing minuets under the wide-spreading foliage on cool summer evenings, but Chardin has placed before us the better, because truer and deeper, traits of life and character which mark "the short and simple annals of the poor." Both were men of the highest genius, but differing so widely in object and mode of action, that it would almost seem impossible that the same age could have produced. The brilliant grace of Watteau has often eclipsed the soberer but sweeter light of Chardin's pieces. Dazzled by the winning flatteries of the great, the former could never worship at the shrine of virtue in humble life, and yet, where can better materials be found for the painter's art than in the piety, simplicity, and domestic happiness of the "common herd?"

But for Chardin we should know nothing of the French people as they were in the reign of Louis XV.—calm, serious,

honourable, and full of the spirit of religion—presenting a striking contrast to the frivolous brilliancy of the court, the faults and follies of which have been but too faithfully transmitted to us. Chardin was himself the son of an upholsterer, and being brought up from his childhood in the midst of the working classes, the success and opulence of his after life could never efface his sympathy with their sufferings and virtues. His paintings are in truth a history of the people, and not that of profligate court and degenerate nobility.

Like many other artists', the names of his paintings indicate his style—the *Goodwife*, the *Governess*, the *Benedicite*, the *Schoolmistress*, the *Soap-bubbles*, the *Game of Goose*, the *Study of Design*, the *Washerwoman*, &c.: all these tell of faith, and hope, and charity—of the mild virtues that adorn, and the high qualities that dignify, the struggles of unknown merit. What Hood and Dickens and Wilkie have done for England, Chardin did for France. He impressed the public with the idea that the virtues, like plants, grow from below upwards, and that the goodness (and far be it from our thoughts to depreciate its value or extent) found amongst the upper ranks of society, the titled and luxurious favourites of fortune, is from the very nature of their position and pursuits but a dim reflex of the purer light which shines so steadily through good and ill beneath.

Chardin was a scrupulous imitator of nature, and all his pieces are distinguished, not less by the rude vigour of their execution in the more prominent parts than the great delicacy of the details; and perhaps no French artist has ever displayed so exact an appreciation of the effects of light and shade.

The nature of the subjects which he has in every case chosen is a striking proof of his enthusiastic love of art solely for art's sake. Not one of them is drawn from the associations of gaiety and luxurious ease by which his great wealth and high talents had surrounded him. His imagination was ever recurring to the scenes amidst which his early life had been spent. By his father—who, as we have already said, was an upholsterer—he was placed in the studio of Pièrre Jacques Cazes, an historical painter, that he might learn the elements of design, in order to qualify himself for the tasteful decoration of apartments in private houses. A marriage with an heiress at the age of twenty-one placed him above the necessity of labour, and he thenceforth painted merely for amusement, and without any idea of distinguishing himself in it. An accident for the first time made him acquainted with his own talents. It was the custom for the artists who did not belong to the Academy to exhibit their works on Corpus-Christi Day in the open air in the Place Dauphine. Amongst them Chardin, on one occasion, placed some of his. The members were struck by the wonderful accuracy and truthfulness of one of them, representing a ray-fish with the body opened, and, inquiring for the owner, immediately proposed admitting him to the Academy. This painting still remains in the gallery of the Louvre. From the period of his admission, in September, 1728, until his death, in December, 1779, he exhibited more than a hundred *tableaux de genre*, animals, "dead nature," and sometimes landscapes. His paintings were eagerly sought after by the amateurs of the day, and a great number were bought for the courts of Sweden and Russia. He was elected a councillor of the Academy in 1743, and treasurer in 1754. He at this time lived chiefly at Rouen, and was chosen a member of the Academy of Science, Arts, and Belles Lettres of that town. We are informed by Diderot, in a letter written in 1769, that to him also was assigned the task of assigning its place to each painting at the Expositions. The same writer also calls him "*un homme d'esprit*"—a man of intellect—and states that none of his contemporaries could speak on the fine arts with so much force and precision. His critiques on painting exercised a powerful influence on the artists of the day, and the effects of them may be traced in many of the works published at the time. He took every opportunity of impressing his pupils with the idea "that the hand, the brush, and the colours, were only the tools of painting; that even rules were but the means; and that what really constituted an artist was genius and truthfulness. The want of the former could be in some sort supplied by tact and talent, but nothing could compensate for the absence of the latter."

STATISTICS OF THE WOOLLEN MANUFACTURE OF GREAT BRITAIN.

Unlike the cotton and silk manufactures, a large proportion of the raw material used in the woollen manufacture is the produce of our own country. Of the actual quantity of wool annually produced in this country we have no data of an officially correct character. In 1820, Mr. Lucock estimated the production of English wool at 393,236 packs, of 240 lbs. each, or 94,376,640 lbs. In 1828, Mr. Hubbard estimated the produce at 463,169 packs, or 111,160,560 lbs.; in 1846, Mr. Porter estimated it at 607,187 packs, or 145,724,880 lbs. Taking it in round numbers at 150,000,000 lbs., we shall probably be very near the mark if we assign that quantity to be the annual produce at the present time. The whole of this produce, however, is not consumed at home, for in 1850 there were exported 12,002,773 lbs.; and in 1851, 8,517,500 lbs., principally to Belgium and France. As however British wool is not sufficiently fine for the better class of woollen cloth goods manufactured, we import considerable quantities of this raw material from foreign countries and from some of our colonial possessions. There has been a remarkable alteration in the quantities of wool imported from different places abroad even during the last fifteen years, without going farther back. This will be evident if we contrast the imports of the years 1833 and 1849, the date of the last official classified account. In 1833, the quantities imported from the undermentioned countries were as follows:—Spain, 3,339,150 lbs.; Germany, 25,370,106 lbs.; other European countries, 5,056,380 lbs.; South America, 223,832 lbs.; East Indies, 3,721 lbs.; Cape of Good Hope, 93,325 lbs.; Australia, 3,516,869 lbs.; other parts, 442,704 lbs.: total, 38,046,087 lbs. In 1849, Spain, 127,559 lbs.; Germany, 12,750,011 lbs.; other European countries, 11,432,354 lbs.; South America, 6,014,525 lbs.; East Indies, 4,182,853 lbs.; Cape of Good Hope, 5,377,495 lbs.; Australia, 35,879,171 lbs.; other parts, 1,004,679 lbs.: total, 76,768,647 lbs. It is gratifying to see the great development of our Indian, Australian, and African possessions in the production of this valuable raw material. In 1788, the number of sheep in Australia was 29; in 1800, 6,124; and in 1848 (December 31), 14,943,903. In 1851, the importation of wool was as follows:—British possessions out of Europe, 51,993,463 lbs.; other parts, 29,070,216; Alpaca and Llama wool, 2,013,202: total, 83,076,881 lbs. Of this there were re-exported, 13,729,938 lbs., leaving a surplus of 69,346,893 lbs. of foreign wool for home use, which, added to the balance of British wool (by deducting 8,500,000 from 150,000,000), 141,500,000, gives a grand total of nearly 211,000,000 lbs. for the use of our manufactures.

In the spinning of this wool into yarn, and weaving the yarn into cloth, blankets, &c., there were employed in 1851 in 1,497 factories 74,443 people (44,765 males, and 29,678 females), of whom 4,226 were boys, and 2,868 girls under 13 years of age; 11,884 males between 13 and 18 years of age; 26,810 females above 13 years of age, and 28,655 males above 18 years of age.

The number of spindles employed in spinning the wool into yarn was 1,595,278, and the number of power-looms employed in weaving the yarn into cloth, &c., was 9,439; these spindles and power-looms being set in motion by 13,455 horse steam power, and 8,689 horse water-power.

The distribution of the woollen factories throughout the United Kingdom is as follows:—*England and Wales*—Brecon, 9; Cardigan, 9; Carmarthen, 18; Cheshire, 12; Cornwall, 5; Cumberland, 11; Denbigh, 7; Derby, 2; Devon, 14; Dorset, 3; Glamorgan, 31; Gloucester, 80; Hants, 1; Hereford, 3; Lancashire, 26; Leicester, 6; Lincoln, 1; Merioneth, 16; Middlesex, 1; Monmouth, 9; Montgomery, 54; Oxford, 8; Pembroke, 9; Radnor, 2; Shropshire, 3; Somerset, 31; Surrey, 8; Westmoreland, 8; Wiltshire, 36; Yorkshire, 880: total, 1,306.

Scotland—Aberdeen, 22; Ayr, 16; Berwick, 5; Clackmannan, 23; Dumfries, 5; Edinburgh, 2; Fife, 2; Forfar, 2; Haddington, 1; Kinross, 2; Kircudbright, 4; Lanark, 8; Linlithgow, 1; Moray, 2; Peebles, 4; Perth, 14; Renfrew, 3; Ross, 2; Roxburgh, 21; Selkirk, 15; Stirling, 22; Wigton, 1: total, 182.

Ireland—Cork, 1; Dublin, 2; King's County, 1; Queen's County, 3; Kilkenny, 1; Waterford 1: total, 9.

The number of people employed in these factories by no means represents the whole number of persons employed in the woollen manufacture; there are many processes incident to this manufacture which are carried on in the cottages of the work-people, and consequently are not mentioned in the above account. In the woollen-cloth manufacture of the West of England about two-thirds of the people work in the factory, and one-third out. The total number of persons employed, inclusive of dyers, scourers, makers of machines, foremen, clerks, &c. &c., may be estimated at many thousands.

In addition to the woollen factories, properly so called, there are 501 worsted factories, which must be included under our general notice of the manufactures in wool of the United Kingdom. These factories are located as follows: — *England*—Devon, 7; Durham, 4; Essex, 1; Lancashire, 11; Leicester, 22; Norfolk, 11; Nottingham, 1; Shropshire, 2; Staffordshire, 1; Surrey, 1; Westmoreland, 3; Worcester, 11; Yorkshire, 418: total, 493.

Scotland—Ayr, 4; Lanark, 1; Renfrew, 1: total, 6.

Ireland—Dublin, 2.

In the spinning and weaving of worsted in these factories there were employed in 1851, 79,737 persons (27,117 males, and 52,620 females), of whom 4,237 were boys, and 5,719 girls under 13 years of age; 7,695 males between 13 and 18 years of age; 46,901 females above 13 years of age; and 15,185 males above 18 years of age. The number of spindles employed in spinning the worsted was 875,830, and the number of power-looms used in weaving 32,617;—these spindles and power-looms being worked by means of 9,890 horse steam-power, and 1,625 horse water-power.

The value of foreign woollen manufactures not made up, imported in 1851, was £598,522; and of articles or manufactures of wool wholly or in part made up, £113,041. Of the former to the value of £53,534 were re-exported; and of the latter to the value of £15,697.

The quantities and value of British manufactured woollen goods exported in 1849 were as follows:—Yarn, 11,773,020 lbs.; cloths of all sorts, 331,809 pieces; napped coatings, duffles, &c., 1,294 pieces; kerseymeres, 32,590 pieces; baizes of all sorts, 21,896 pieces; woollen or worsted stuffs, 2,003,595 pieces; flannel, 2,266,959 yards; blankets and blanketing, 5,708,025 yards; carpets and carpeting, 1,565,745 yards; woollens mixed with cotton, 42,115,401 yards; woollen or worsted stockings, 165,645 dozen pairs; sundry small wares, value £199,761: total value, £7,342,723. The United States of America, the Hanseatic towns, Holland, Italy, the South American States, British North America, China, India, Belgium, Portugal, France, and Australia, are our best customers for woollen goods. In 1718 to 1724, the annual value of British woollens exported was £2,962,881; in 1799, £6,876,939. In 1816, on the close of the war, the exports rose to the large sum of £10,200,927, a point they have never again reached, although the value of the exports in 1851 was £10,040,332. In 1851, there were exported of woollen manufactures, entered by the piece (as cloths, &c.), 2,637,290 pieces; of goods entered by the yard (as flannels, carpets, &c.), 69,253,594 yards; 189,893 dozen pairs of stockings; sundry small wares of the value of £187,892; and 130,981 cwts. of woollen yarn: the total value of which amounted to £9,856,259, a large proportion of the value of the whole exports of the country.

CROWTHER THE BOTANIST.

James Crowther, a porter at Manchester, furnishes one of the most extraordinary instances on record of devotion to science in humble life. He was born at Manchester, and at the age of nine years was employed as errand boy in connexion with one of the factories, like most of the children of the poor in these great seats of industry. He had been sent to school during some short period, and had made such good use of his time that he had learned to read with sufficient ease and correctness to acquire some literary taste; but from his earliest years he exhibited the utmost fondness for natural history, and above all for botany. Manchester and its environs has always numbered amongst its working men a considerable number of amateurs in science, if we may use the expression, and the fields in the neighbourhood are frequented by them for the purpose of collecting specimens.

Crowther made the acquaintance of some of these, and remained upon intimate terms with them during his whole lifetime. Thirty or forty persons belonging to the town, and who were fond of botanising, met every week during spring and summer to exhibit the specimens they had collected, and communicate to each other the result of their observations. Crowther, however, being employed as a porter during the day, could only devote the night to his favourite study. He might often be seen in the fields about day-break, where he continued busily engaged until the approach of the hour of labour compelled him to hasten home. While thus employed, he frequently run great danger of being arrested by gamekeepers, watchers, and others, who could not imagine that a man in his rank of life could be roaming through the fields at such an hour for any purpose but a mischievous one. Upon one occasion he was found botanising upon the property of a Mr. Egerton, and was taken into custody, charged with fishing in his preserves, and was brought up before a magistrate. The proofs appeared sufficiently plain. He was armed with a long pole with a sharp crook and a net at the end. It was in vain that the botanist protested his innocence of the design imputed to him, and explained that his weapon was intended for no other purpose than the pulling up of aquatic plants and dragging them ashore, and he would in all probability have paid for his imprudent devotion to science by being immured in prison, had not Mr. Egerton become convinced of the truth of his story, and given direction to his gamekeepers not to prosecute him nor molest him in his excursions in future. His friends tell many stories of the delight which the discovery of a plant previously unknown to him caused him even in old age. He never seemed in the least degree affected by cold or fatigue. One day he persuaded one of his friends to accompany him to a lake on the banks of which he stated he had seen a rare plant; but on their arrival they found, to Crowther's great chagrin, that the waters had risen so much in consequence of the heavy rains that the object of their search was no longer to be seen. His friend was about to go away dissatisfied, when he heard a plunge, and turning round he found that Crowther had disappeared. In a few minutes he re-appeared and swam ashore carrying the specimen in his mouth.

Crowther's name has not been entirely unknown to fame. Sir J. E. Smith, Dr. Hull, and Larmoletti speak of him in terms of the highest praise, and of the services he had rendered to science by his valuable collection of mosses and lichens. He also devoted considerable attention to entomology, and had in his possession a large collection of insects, which he classified himself with great care: but he was obliged to dispose of them by degrees, in consequence of the pressure of poverty, as he had a wife and a large family. His innate modesty always kept him from seeking either assistance or patronage, and he consequently remained all his life the porter of a warehouse. For a long time he received only sixteen shillings a week of wages, and afterwards twenty shillings, the whole of which he placed in his wife's hands, reserving to himself nothing but the proceeds of any extra jobs he might pick up in the town, which he spent in furthering his botanical pursuits. Age and infirmity having rendered him no longer fit for the duties of his situation, he was obliged to subsist during the latter years of his life upon a pension of three shillings a week allowed him by the Society for the Encouragement of Needy Men of Science. This was all Manchester could do for a philosopher in humble life—the great emporium of commerce which spends thousands without hesitation upon the uncertainties of political agitation. Crowther died in 1847, at the age of seventy-seven years, leaving all his children in a position as humble as his own. When he was dead the world found out that he was a great man, and spent seven guineas in burying him and building a tomb over him, by way of compensating him for the misery and destitution of his old age!

PAINTINGS OF CHARDIN.

In the first engraving we find ourselves in the interior of the modest dwelling of one of the lower classes. It is midday, and the young mother is engaged in apportioning their dinner to her children. Leaning upon the table, she dictates to the elder a form of imploring a blessing on their food, and the little girl, with clasped and uplifted hands, seems to repeat the words as they fall from her lips. Let the reader attentively



ASKING A BLESSING. FROM A PAINTING BY CHARDIN.

examine the expression of those three faces. Let him observe the careful adjustment of the young mother's cap, the tasteful folding of her handkerchief, the rosette in her shoes, and her long muslin sleeves—the mingled piety and fondness of her looks—and ask himself, must not a feeling heart and observant eye have guided the hand which traced this scene of domestic happiness and purity? The mother is a fine type of the character which happily for mankind, is found amongst thousands of her sex, preserving in her house the sacred traditions and noble instincts of religion, of honour, and of self-respect, without aught of "high life" but its good taste.

The *Washerwoman*, of which we present our readers with an engraving, was one of the first paintings exhibited by Chardin, in 1737, and was purchased for the collection of the Chevalier de la Roque. It displays great truthfulness both in design and execution. The scene is a room in a cottage, in which a young housewife is washing clothes in a tub, with a coarse apron tied before her to protect her clothes from the water. Her scissors hang on a chair behind her, and beside the tub a child sits blowing soap-bubbles from a tube. In the background a half-opened door shows a servant hanging clothes on a line to dry,

and on the ground a cat is crouching lazily. This is the whole of the painting; but what exquisite skill there is displayed in the distribution of the light and shade, and what grace and simplicity in the air and attitude of the women and the child!

These are the sort of works which inspire the humbler classes with the love of art and the spirit of beauty which should animate and guide it. The truth of illustrations drawn from scenes in their own everyday life they can perceive at once, and here they may with safety criticise. They can detect points of difference between the reality and the representation, and improve their powers of observation by searching for them. And where, as in nearly all Chardin's pictures, the highest lessons of morality are inculcated through the medium of sensuous pleasure, and the good and useful is not lost sight of in seeking for the beautiful, the beneficial effects of the exhibition of good works of art can hardly be overrated. Chardin was happy in belonging to a country, which with all its faults, has ever been celebrated for its efforts to supply the working classes with the means of mental improvement and elevation. Galleries of the finest paintings in the world placed in royal halls are open to all. Parks and gardens, fountains, libraries, are everywhere at the service of the *ouvrier* as well as the *gentilhomme;* and the result is, that the working men of France in manner, bearing, intelligence, and fondness for intellectual and refined pleasures are far superior to our own. This may be a truth painful to hear, but the fault lies with our rulers. While thousands have been spent on statues to profligates, whom the nation is ashamed to own and the world would fain forget, our picture-galleries are few and badly managed, funds are voted for public instruction and amusement in a spirit of short-sighted niggardliness; and this week we hear that the Crystal Palace, the greatest triumph of English art and industry, is likely to be pulled down. We can learn something from our neighbours if we are wise. We cannot teach everybody to be great painters or great authors; but everything should be done to make the mass of the people seek after and admire the works of those who have lived and laboured for truth and beauty and humanity, who have taught, whether with pen or pencil, that to be industrious, moral, earnest, energetic, and high-minded, is to be happy and useful. To accomplish this, all we have to do is to place no restraint in the way of inquiry and self-improvement. The people's desire to elevate itself will do the rest.



THE WASHERWOMAN. FROM A PAINTING BY CHARDIN.

A VISIT TO A SOAP MAKER'S FACTORY.

What is Soap? Few of us delay our ablutions to ask or answer this question; nor is it at all necessary that we should—just at that particular moment. But a knowledge of the history and manufacture of this valuable domestic adjunct may nevertheless be of essential service. We may therefore spend a profitable half hour or so in describing what to thousands of persons will possess the charm of novelty—namely, the manufacture of soap. This substance, then, to return to the words at the head of the paragraph, may be described as a saline chemical compound, formed of saponified fatty or oily bodies, which, not being of themselves soluble in water, compose, when intimately mixed with alkaline leys, a homogeneous mass, which is easily soluble in water or alcohol. In other and simpler language, fatty matters, such as tallow and oil, when mixed with soda or potash, produce a compound which will lather and froth in water, and which possesses the property of cleansing linen, &c.

All fatty matters may be converted into saponaceous or soap-like compounds, by union with various metallic oxides; but the manufactured and commercial article Soap is understood to consist of the products of soda or potash acting upon fats, the

nature of which determine the various kinds. When subjected to the action of alkaline leys, fatty matters undergo a very remarkable change, being thereby converted into three distinct acids, called stearic, margaric, and oleic. The stearic acid, improperly called stearine, is the solid portion of tallow and various oils, and from it is made the factitious wax candles known as stearine: the margaric, or pearly looking acid, is similar in character to the stearic, and of itself is insoluble in water; and the oleic acid is the thin oily part of the fats, with which is always associated glycerine, or the sweet constitutent of oily bodies. If any of our readers may not altogether understand this somewhat scientific description, it may be stated in simplification, that when subjected to the action of soda or potash, tallow is deprived of its greasy quality. These acids, then, combine and form the compound known as soap.

Our English word is derived from the Latin *sapo*, which, as well as the Greek equivalent, is supposed to come from the low German word *sepe*, a word still retained in many of the German provinces. In the mutations of language this word became changed into the high German *seife*, the *d* having given place to the hard *f*. In the French language our word soap is *savon;* in Dutch, *zeep;* in Italian, *sapone;* in Spanish, *jaborns;* in Portuguese, *sabao;* and in Russian, *malo*.

Various kinds of soaps are in use in the present day. Among them we may mention the yellow or rosin soap, the mottled, the curd, and the soft soap. Of the three first are made all the varieties sold by the perfumers. The various fatty matters which, with the addition of alkalies, enter into the composition of soap may be thus stated: oil of olives and almonds; tallow, hogslard, and the fat of various animals; rape oil; oil of beech, mast, and poppy seeds; fish oils of various kinds, and the oils of nuts, hemp, and linseed. Olive oils make a good pure soap, but the yellow is the cheapest—considered in reference to its cleansing qualities—and in many respects the best.

The reason why soap cleanses may be thus shortly stated: all soaps consist of lixivious or alkaline salts and fatty matter, and nearly all the dirt on our linen, clothes, and persons is made up of perspiration, grease, the dust which such grease attracts. In cold water these matters are nearly insoluble, but in warm water, to which lixivious salts have in any way been added, the greasy dirt discovers its affinity for the salts by mixing with them, and so becoming saponaceous: the soap attracts the soap. In this state the dirt is so far soluble that it may easily be washed out. The modern washing powders are nothing more than alkalies, to which must be added a certain quantity of liquid soap.

Having thus, we hope, satisfactorily answered the question, "What is soap?" a few sentences as to

ITS HISTORY

may not be out of place or uninteresting. The following particulars are abbreviated from an article, by the writer of this paper, which appeared in a little work now out of print:—

In the earliest times clothes were cleansed by water alone, the practice being to stamp on and rinse them in the waves on the sea-shore, in the same way as is yet practised by many uncivilised nations. We are told by Homer that Narcissa and her attendants washed their clothes by treading upon them in pits into which the water had collected; and it is not till a much later period that we have mention made of a ley from wood ashes, though it is supposed that the *konia* mentioned by Aristotle and Plato was a substance of a nature similar to ley, and was used for washing oil and wine jars.

In the time of Paulus Ægineta, however, the use of unslaked lime as a detergent was not uncommon; dry potash was unknown, and Pliny tells us that ox galls were employed for removing spots from the skin. Fixed lixivial salts, however, were occasionally used to cleanse linen, and they, probably, were the *litrum* or *nitrum* of the people of Attica. In the baths, *litrum* was used by the Romans, who, it appears, had little inventive genius of their own, they being in the habit of borrowing from Greece whatever the genius of that nation discovered or made applicable.

In Egypt, the birthplace of the arts, mineral alkali, however, was early brought into use; and Pliny makes mention in more than one place of Egyptian nitre being brought in corked vessels to Rome. Strabo also tells us that alkaline water was used in Armenia by the scourers for washing clothes; and from the works of the learned Schöttgen we learn that alkali, or soda, was used by the Hebrews for cleansing purposes. In the sacred writings it is called *bonth*.

In cleansing clothes and washing the body, soap is of comparatively modern application; and though the ancients used the juices of some saponaceous plants for that purpose, it is certain they were unacquainted with the material at present employed, and that the combination of lixivious salts and tallow was quite unknown to them.

The very earliest mention of soap is found in the works of Pliny, the historian, and Galen, the physician, who tell us that it was anciently made from goats' fat and the ashes of the beech tree, and that there were two sorts, hard and soft. Galen, indeed, in a work on simple medicines, speaks of soap as having been made of ox's, goat's, and sheep's tallow, strengthened with quicklime, which process corresponds with that at present in use in Germany, while the French, by a later invention, employ oil and mineral alkali. German and Gallic soap are frequently mentioned by later writers, and it is generally acknowledged that the ancients used soap to dye and beautify the hair, the Roman gallants, no less than their modern descendants, being anxious to give their hair additional lustre by the employment of cosmetics. We read in the works of various authors, of soap being used as a dye or pomatum for the hair rather than as a washing material.

> "Caustica Teutonicos accendit spuma capillos
> Captivis poteris cultior esse comis;"

says the poet; which may be thus imitated:—

> "Dye thy hair with soap, and it will quickly be,
> More fine than German wigs in their captivity."

It is not unlikely that when Martial wrote this couplet, he intended it as a delicate piece of flattery to Roman pride, Domitian having vainly fancied that he had conquered the whole German nation. It is probable that the Germans coloured or tinged their soaps with the juice of plants.

It was then the fashion to anoint the hair with coloured soaps, and to put the head in a net or caul of bladder at nights. Soap being little used as a detergent, washing clothes among the Romans was considered rather an ignoble employment, and was only practised by the indigent.

The history of soap among the moderns is the history of civilisation; as people have become more refined, they have used more soap.

In our own country the use of soap has been in a great measure retarded by fiscal restrictions. In a curious pamphlet entitled a "True Narrative concerning the Soap Business," which was printed for Nicholas Bourne, in 1641, are many facts relating to the difficulties under which the manufacturer of this article was then subjected. Many books and pamphlets in the British Museum contain petitions from the manufacturers in the time of queen Anne, praying to be relieved from the oppressive taxes then first imposed. But between the two periods (1641-1705) we can learn nothing of the quantities or description of soap usually made. In the pamphlet of Nicholas Bourne, he complains of the soap makers of London—in 1633—being injured by the monopoly enjoyed by a company called the "Governor Assistants and Society of Soap Makers in Westminster," who, on condition of paying to the king a duty of £4 per ton on 5000 tons annually, had allowed them the exclusive right of manufacture. Against this monopoly the soap makers of London—not more than twenty in number—petitioned; and the company, in return, procured an order from the government which further protected their rights, and restricted the sale of soap which had not been assayed by them. The soap makers resisted, and Star Chamber informations were laid against sixteen of them for opposing the company. The defendants pleaded; but having put in their answers one day too late, were all committed to prison. The judges certified "all the answer, except the four first words and last ten, as fit to be expunged," and the defendants were fined in various sums, from five to fifteen hundred pounds

each, and ordered to be imprisoned during his majesty's pleasure. The poor soap makers went to prison; suffered much for about forty weeks, during which time ten of their number died; and were only liberated to witness the proclamation of new edicts giving still greater powers to the company. For more than five years these tyrannical restrictions remained in full force, and many of the London soap manufacturers were again and again committed to prison. At last—in 1637—the company, having "vexed the whole kingdom with their soap," obtained from the king permission to give up the patent. But this permission, which was not sought till the opposition to the company became too strong to resist, was granted to them only on condition of their paying to his majesty the sum of £40,000. To better enable them to comply with the royal demand, it was further decreed that the poor soap makers of London should pay £20,000 to the company for the materials of their trade—materials which had so long been used to oppress and tyrannise over the manufacturers.

From this time various restrictions have been from time to time removed. The soap maker now pays an annual licence of £4, besides his excise duty.

With this long preface over—a preface, however, necessary to a proper comprehension of what follows, we may proceed to detail the particulars of our visit to

JOHN KNIGHT AND SON'S SOAP FACTORY,

in Old Gravel-lane, Wapping. Many of our readers know very little of Wapping—some of them, possibly, having only heard of it in Dibdin's Song or Joe Miller's Jest-Book. For their particular information, however, we may state that it is a district in the east of London, on the Middlesex side of the Thames, a little below the Tower, chiefly inhabited by sea-faring men, and tradesmen dealing in commodities for the supply of shipping and sailors; that it was originally a marsh frequently overflowed by the Thames, and first recovered in the reign of queen Elizabeth; that on the banks of the river in this not overclean or elegantly-built locality, were to be seen, within the memory of the "oldest inhabitants," the gibbets on which our ancestors were used to hang pirates in chains; and that in the present day it would be considered by the denizens of St. James's and Belgravia a strange outlandish sort of place, in which dull warehouses, queer-looking little docks, swinging-bridges, narrow streets, dirty houses, and an ill-dressed population, were the most remarkable objects. But it has, nevertheless, its literary interests, one or two of which we may note in passing. Strype tells us that king Charles having hunted a stag from Wanstead, in Essex, killed him in a garden in Nightingale-lane, Wapping, and that the proprietor of the place was sorely vexed at the multitude of people who assembled on the occasion, to the great damage of his favourite plants and flowers. In Wapping, "in a strange lane or alley," like many which are to be found in the present day, lived Ames, the antiquary, the author of a very useful, but now little known work, entitled "Typographical Antiquities, or the History of Printing in England." To a wretched ale-house called the Red Cow, in Anchor and Hope-alley, near King Edward's stairs, in Wapping, the notorious Judge Jeffries retreated, in the disguise of a common sailor, after the abdication of king James. Being found by a scrivener whom he had formerly insulted, leaning out of a window of the tavern in all the audacity of false security, he was dragged out and insulted by the populace. It was Wapping that Johnson advised Boswell to explore if he would note the curious modes of life which some people in London pursued—a piece of advice which Bozzy followed, and was disappointed, as a matter of course—as he naturally would be if the great doctor did not go too.

Having recalled these things as we make our way through Old Gravel-lane from the city, we pause at a short distance from the Thames Tunnel; and, passing down a little street on the right, we proceed through a pair of large gates, and find ourselves within the premises of John Knight and Son, soap and candle makers. After making ourselves known to the heads of the firm, one of whom accompanies us over the factory, we make the circuit of the entire space within the walls, and jot down our conclusions by the way.

We are standing in the centre of a large open court. On the right of the entrance are the dwelling and counting-houses; to the left are various low buildings used for various purposes, while before us lies the soap factory itself; the latter consists of a large range of buildings, no doubt admirably adapted for the purposes for which they are used, but not remarkable for any particular architectural display. The space in front was occupied at the time of our visit by several four-horse-wagons, into and from which were being emptied various articles necessary to the trade; a vast number of greasy-looking tubs filled with tallow, and several frames in which mould candles were undergoing the process of cooling; in the back-ground, to the left, was a great heap of refuse lime and alkali, which is afterwards used for manure; and numbers of men and boys passing to and fro gave to the scene a rather animated appearance. Attached to the counting-house is a small distillery and laboratory, fitted with apparatus for testing the quality of the soaps; but into that we did not enter.

We proceed, then, under the guidance of our intelligent conductor, to the soap factory, and first enter

THE FAT ROOM.

A glance at the engraving will convey a better idea of the general appearance of this apartment than could any words of ours. Here, hanging on rafters, ranged on shelves, and lying on the ground, are vast quantities of the raw material from which the soap is made. It is a strange sight indeed; and our nose is assaulted in a way we can hardly describe—a fat, tallowy, disagreeable smell pervades the atmosphere, which, at first, is anything but pleasant; but as we stand for a minute or two among the immense masses of yellow beef and mutton fat, the sensation passes imperceptibly away. We are told that a soap factory is, on the whole, an extremely healthy place. Here all the fat is weighed as it is received, whence it is taken as it is required to the

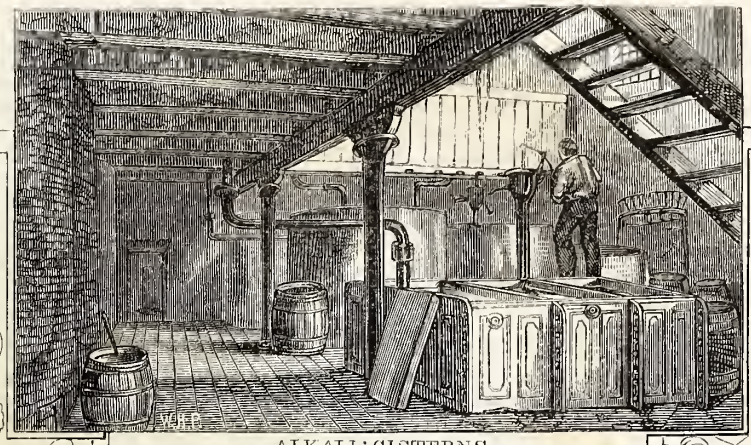
MELTING COPPERS.

These are merely large coppers with furnaces beneath, in which the fat is melted. The scent here is, if possible, more abominable than in the fat-room. The operation of melting is extremely simple. After the fat has been melted down till no more liquid can be obtained from it, the residue is gathered up and carried to a powerful press where it is formed into the greaves with which dogs are fed. Several of these coppers are ranged side by side; in some of which the best fat is melted for the superior kinds of soap, and into others the kitchen stuff finds its way for the commoner descriptions. A room in which the heterogeneous materials called kitchen stuff is received is on the ground floor; but it differs little from the fat-room, except in its more disagreeable stench. The liquid fat is carried by pipes from the melting to

THE BOILING COPPERS,

where we will follow the process. For a minute or two we see little for the steam which arises from the immense boilers ranged along the walls; but soon recovering our sight, we perceive standing before each copper a couple of men, who keep continually stirring the liquid contents with long wooden rakes. Each of these coppers is filled with the materials for making yellow soap, in various states of preparation. The liquid fat, the alkaline liquor and the rosin having been added together, the latter in a state of fine powder, the boiling commences. Rosin, it should be observed, though differing so much in appearance from tallow, possesses nearly the same chemical constituents. Being cheaper than tallow, it is used extensively by the soap maker. Rosin, though very soluble in alkaline menstrua, says Dr. Ure, is not susceptible like fat of being transformed into an acid, and will not, of course, saponify or form a proper soap by itself. The more caustic the alkali, the less consistence has the resinous compound which is made with it. Hence fat of some kind, used in considerable quantities, must be used with the rosin. Sometimes for the commoner descriptions of yellow soap, equal quantities of fat and rosin are used; but for the better kinds, about one-third rosin to two-thirds tallow is the usual proportion. As alkaline matter cannot be neutralised by rosin, it preserves its peculiar acrimonious odour in poor soaps, and acts too powerfully on


BOILING COPPER.
MANUFACTURE
OF
SOAP.
DRAWN BY
W·H·PRIOR
AND
ENGRAVED BY
T·WILLIAMS
GRIEVES PRESS.
MELTING COPPER.



ALKALI: CISTERNS.







TREATED SOAP MAKING



STAMPING & PACKING.

woollen and other animal fibres to which it is applied. Rancid tallow, it is said, serves better to disguise the strong smell of rosin in soap than any oil or other species of scent. The materials are kept boiling for a considerable time with an excess of caustic ley, being kept continually stirred so that all the materials shall incorporate; and when the "paste"—as the soap in this state is called—is found, on cooling a sample of it, to have acquired a solid consistency, and, when diffused in a little water, not to leave a resinous varnish on the skin, the soap may be said to be finished. The soap maker next proceeds to draw off the superfluous ley, and to purify the "paste." For this purpose a quantity of ley of a much less caustic quality is added; the whole mass is again heated, and after being well stirred is allowed to settle and drain off its leys. A third, and sometimes a fourth, service of leys is introduced, and during each operation the agitation and period of repose goes on as at first. The pan being now skimmed, and the scum reserved for another operation, the soap is drawn off, and introduced into the soap frames, there to cool and harden till it shall be in a fit state to cut into bars.

But before we speak of this process we must, in order to render the foregoing quite plain to the reader, visit the

ALKALI CISTERNS.

Near the coppers, for the convenience of ready transportation, are situated several vats or coppers, in which the alkali is refined till it is in a proper state. It is brought to the soap boiler in a solid and impure form, as a crude and imperfect carbonate of soda or potash, and it is necessary for him to reduce the dry greyish powder, as it then appears, to a liquid and highly caustic state. The alkali, or "white ash," as it is called, used by the soap-maker is soda, made principally by the decomposition of salt. The salt of commerce consists of chlorine and sodium; and the decomposition and separation of one from the other is produced by means of a peculiar treatment with sulphuric acid. From this process there result "muriatic acid and sulphate of soda. This sulphate is converted into a carbonate of soda by contact with carbon; and lastly, the carbonic acid is driven from the carbonate, leaving the soda in a caustic state, and forming, when in solution with water, the liquor which soap-makers call a ley or lye." Before the alkali can be used by the soap-maker, it must be deprived of the carbonic acid which is always found combined with it; for this purpose it is necessary to filtrate it through beds of lime. No matter whether the alkali used be the barilla and kelp of Spain and the Orkneys, or the soda made from common salt, the process it must undergo is altogether the same. The crude soda after being ground, is stratified with lime in cast-iron vats, six or seven feet wide by four or five deep, the lowest layer being unslaked or shell quicklime. The vats have a false bottom perforated with holes, and a series of lateral tubs beneath, through which the leys trickle off, after filtration, in a clear and caustic state. The preparation of ley for yellow and mottled soaps differing little, we may merely observe that the alkaline liquor is pumped from the vats into the boiling coppers, where it is mixed with the necessary quantity of oil and rosin in the manner described. When the liquor has spent all its strength, it is pumped from the soap by means of a barrel which descends to the bottom of the boiler; fresh ley is introduced; and this process is repeated over and over again, as we have seen, till the soap is considered to be in a fit state for the frames.

FILLING THE MOULDS OR FRAMES

is also a very simple operation. The soap being now in a liquid state, it is ladled from the coppers into buckets or pails, and conveyed to the frame-rooms above, where it is poured into the frames. The frames consist of a series of rectangular bars of wood or iron, measuring internally 15 inches by 15, placed one on top of the other, sometimes to the height of twelve or fourteen feet. Into the well or cistern thus formed the soap is poured, and allowed to remain for four or five days, according to the weather. In the iron frames it cools much more quickly than in the wooden ones, in consequence of the greater retention of heat by the latter. When the entire mass has become cold and solidified, the iron fastenings of the frames are removed, and the rectangles being removed one by one, a solid, compact body of soap remains the exact shape of the interior of the frame. So well do the bars composing the mould join together, that no seams or openings are observable in the soap after the rectangles have been removed. Many frames contain as much as three thousand pounds' weight of soap.

CUTTING INTO BARS.

Having arrived at this stage, the soap is cut first into slabs, and then into bars, as we see them in the shops. The purest and best yellow soap made at this establisbment is afterwards stamped, "John Knight and Son's Primrose Soap," by means of a small hand-stamp of brass or iron. The cutting of the mass of soap into bars is a very neat and effective operation. One of the workmen having marked the surface of the soap into parallel lines with a gauge-stick, in which are inserted sharp points, two men then draw a copper wire through the mass in the exact direction of the marks, one man guiding the wire, and the other drawing it through by means of a pair of handles. A slab of soap about three inches thick is thus cut off, which is immediately removed to a kind of wooden platform, to be cut into bars by another set of operators. Twelve slabs being laid horizontally, one over the other, they are again marked off with a gauge, and a piece of wire passed through them in a downward direction, which process divides them into bars about three inches square; in which state they are removed by another workman, and piled into stacks ready for sale. The operation of cutting into bars is shown in the engraving.

All kinds of soap are made in much the same kind of way we have described. A little palm-oil, the produce of the palm-tree of Africa, is added to yellow soap to give it the proper colour; and the peculiar appearance of mottled soap is produced by sprinkling into the liquid mass a quantity of potash ley through the rose top of a garden watering-pot. The mottled soap is hardened in frames of a rather different construction, and presents the appearance, when cold, of a hollow square mass, which is cut into bars in the same way as we have just noticed. We come now to speak of the various

TOILET SOAPS,

which are but simple modifications of the yellow and curd soaps variously scented. For the purpose of this paper we visited the establishment of Messrs. Cleaver, in Red Lion-square. This firm are the great producers of the kind of soap known as Honey Soap, which is, in fact, but a refined variety of the best and purest yellow, scented according to taste, stamped beneath a small machine, and packed in boxes as we see it in the shops of the retailers. The apparatus used in remelting and refining are of a smaller and neater construction than those of the factory, but the process is nearly identical.

Curd, or white soap, consists almost wholly of the best tallow prepared with alkali. It may be noticed, however, that in the preparation of yellow soap, some manufacturers, with a view of increasing the quantity and decreasing the price, are in the habit of mixing a quantity of water with the liquid soap in the frame—a practice more honoured in the breach than the observance.

From analyses made by Dr. Ure, it has been found that the perfumers' white, or curd soap, consists of, in each 100 parts—soda, 9; fatty matter (tallow), 75; water, 16;—London or Glasgow yellow soap—soda, 6·4; fat and rosin, 70; water, 23·6; —foreign Castile soap—soda, 9; oily fat, 76·5; water and colouring matter, 14.5; cocoa-nut oil soap—a remarkable variety, which possesses the property of dissolving in sea-water—soda, 4·5; cocoa-nut lard, 22; water, 73·5.

The kinds known as white and brown Windsor, cinnamon, musk, rose, and other fancy soaps, are but curd or yellow soap remelted, modified, refined, and perfumed.

There is yet another kind which is known to the housekeeper as

SOFT SOAP.

This variety is used extensively in the woollen manufacture, and differs considerably from hard soap in its appearance, con-

sistency, and ingredients. Instead of tallow wholly forming the base, various fish oils are used as the oléaginous ingredient; and instead of soda, the carbonate of potash, brought to a highly caustic state, is the alkali. Instead of drawing off the leys, as in hard soap making, they are allowed to remain in combination with soft soap—the white specks observed being the tallow, which in the process of manufacture had combined with the salts of potash. Soft soap is not "framed," but is sold in casks and barrels.

We may now bring our remarks and our visit to a

CONCLUSION.

In the factory of Messrs. Knight are also made the candles commonly in use—namely, mould and dip, or store candles—but for the present we refrain from entering into a description of the processes employed.

Nor can we say much of the excise regulations observed at a soap factory, which of late years have been less strict than formerly. The alteration of the soap duties have been attended with the most marked success. In 1828, when the duty was £28 per ton, the quantity charged for home consumption was only 91,000,000 pounds. The year following the reduction of the duty to £14 per ton (1834), this quantity was increased to 104,790,000 pounds; in 1840 it had further increased to 127,000,000; and in this year of grace, 1852, the quantity consumed may be fairly estimated at not less than 150,000,000 pounds. Comment is quite unnecessary in the face of such facts. We close our note-book, we thank our polite conductor, and we conclude our visit. If the reader is not as gratified as we were, the fault lies in the pencil of the artist and the pen that describes this factory, not in any want of interest in the place itself. A few steps takes us to the Thames Tunnel. We walk thoughtfully through the famous and wonderful work of the elder Brunel; and, returning, take boat at the stairs, and come back by the silent highway to Westminster.

PEASANTS OF THE PYRENEES.

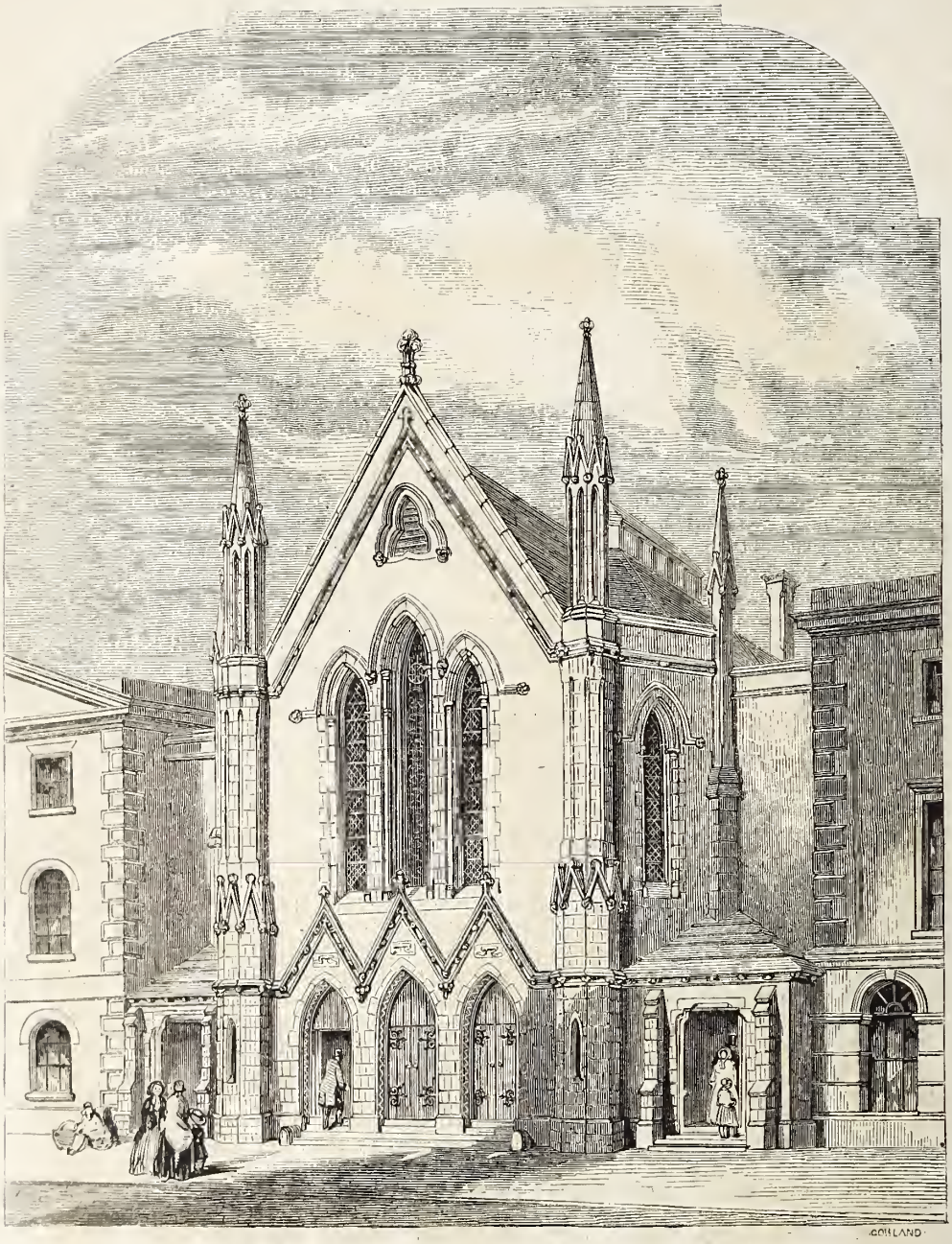
THE peasants of the Pyrenees have all which their necessities demand within themselves. They grow their own flax, and one of their most busy occupations is to dress it. They do not steep it in water before beating it, as in England, but spread it on some sloping field or hill-side, where it undergoes no other process than what is effected by exposure to the weather. Not only is the flax prepared and woven for their own use, but the wool of the mountain sheep, undyed, is made into jackets, trousers, petticoats, as well as into various other articles of clothing. Thus supplied with the most common and necessary kinds of dress, their wants are equally simple as regards their furniture and food. A few brass or copper vessels for their milk are always used by those who make cheeses, as many of the peasants do, not only of the milk of cows, but of that of sheep and goats. For a churn they have a very simple substitute, being no other than a dried sheepskin. For keeping wine the skins of kids are frequently used, with the hair inside; and the same article is also converted into a large pocket or knapsack, which the little girls carry at their backs. The skin, when used in this manner, is kept entire, either the head or the tail of the animal being folded over the opening of the knapsack. All implements of husbandry used amongst the Bearnais are equally simple in their character. The pole of their little carts is often nothing more than the stem of a tree, cut off where it has divided into two branches, so that the ends of the two forks connect with the axletree; and the forks with which their hay is made are branches or stems of the same description, on a smaller scale. Their ploughing, such as it is, is effected by a sort of double process, requiring four oxen — two to go before with the coulter, and two others with another implement to turn over the soil. Both these are generally conducted by women. For millet and buckwheat, which succeed immediately to the earliest crops, the soil is merely turned over with a shovel after the earth and stubble are burnt in heaps, and strewn upon the field. The process of preparing the ground for wheat and oats is simple in the extreme. Both the seed and the manure are strewn upon the land, ploughed in together, then harrowed, and all is finished. The labour of carrying and spreading manure is performed almost exclusively by women, who sometimes carry it on a sort of hurdle into the fields, but more frequently in sacks on their heads. In the Valley d'Aspe it is taken to the fields in large woollen sacks placed upon the backs of donkeys. I find it stated in my journal, that in the beginning of August the maize in the Valley of Campan was waving in all its glory, having attained the height of a man's shoulder, and being still green. At the same time the reapers had begun to cut the wheat and oats; and I expected to have seen the over-yellow corn-fields adorned, as they are in England, with those golden sheaves which have so many pleasant associations. To my disappointment, however, I found that the harvest in the Pyrenees was a very different affair from what it is with us; for no sooner was the wheat cut down than it was tied up in bundles, carried away upon the heads of the owners, and stowed into those innumerable little barns which adorn the splendid landscape; all this despatch being rendered necessary by the dishonesty of the people, which is such, that no one leaves his corn in the field after it is cut for a single night. I am sorry to make this confession in relation to the people whose simple lives I had previously thought so enviable; but I am also bound in common justice to state, that even their potatoes, when ready to be taken up, were always watched in the Valley of Campan.

EXHIBITION OF THE INDUSTRY OF ALL NATIONS AT NEW YORK.

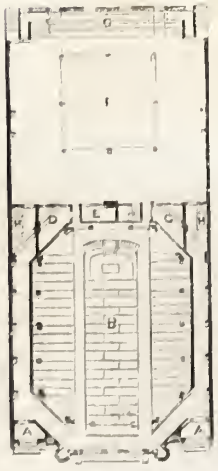
THE plans for this projected Exhibition are matured, and will soon be laid before the public. A charter is drafted, and will be immediately applied for; and considering how beneficial to the country such an exhibition properly conducted must needs be, there can be no doubt that the application will immediately be granted. The building which it is proposed to erect will cover not less than *one hundred and sixty thousand* superficial square feet; and it is estimated that this can be erected and prepared for the Exhibition for two hundred thousand dollars. A large portion of this sum, which is all that it is necessary to secure, has been already subscribed. Contributions from more than three hundred and fifty of the English, French, Italian, German, Hungarian, Swiss, and Danish exhibitors at the Great Exhibition in London, including many cases of the most costly and magnificent articles displayed in the Crystal Palace are now awaiting transportation to America upon the announcement of the readiness of the building to receive them. Among the well-known works of Art which are to be sent to New York are the statue of the *Amazon*, by KISS, which received a Grand Council Medal; a colossal statue of *Washington*, by MAROCHETTI, whose statue of *Richard Cœur de Lion* received a Council Medal; a statue of *Daniel Webster*, one of *Wesley*, by CAREW; and also the *Crucifixion*, exhibited by him at the Crystal Palace; the statue of *Prometheus*, by MANNING; the "*Veiled Figure*" by MONTI; and a silver statue of *Columbus* from the Sardinian Commissioners.

That the enterprise has fallen into the best possible hands, the names of the following gentlemen, who have consented to serve as the General Committee previous to the procurement of a charter, are a sufficient guarantee. They are Messrs. Francis W. Edmonds, Mortimer, Livingston, August Belmont, Watts Sherman, Alfred Pell, Theodore Sedgwick, William Kent, George Bancroft, Alexander Hamilton, jun., E. K. Collins, Johnson Livingston, William C. Bryant, John C. Develin and George P. Putnam. Of these the first five have been appointed trustees of the money subscribed until the election of officers under the charter; and at a meeting of the committee held February 19th, the following gentlemen were appointed an executive committee to carry out the details of the Exhibition. Theodore Sedgwick, Esq., chairman; Mortimer Livingston, William Kent, Alexander Hamilton, jun.; Alfred Pell, John C. Develin, and Johnson Livingston, Esqrs.

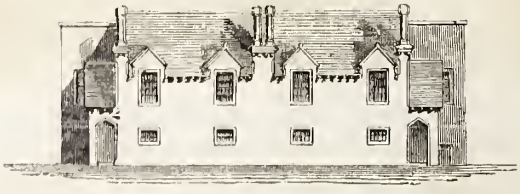
CHAPEL ARCHITECTURE.



WINCHESTER CONGREGATIONAL CHAPEL.—W. F. POULTON, ARCHITECT, READING.



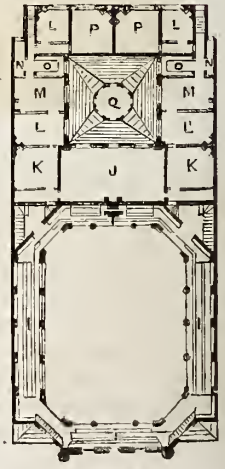
GROUND PLAN.



BACK ELEVATION.

REFERENCES:—

A. Entrance Lobbies
B. Chapel 68 feet by 54 feet.
C. Ministers' Vestry.
D. Library.
E. Store Room.
F. School 54 feet by 53 feet.
G. School Gallery.
H. Staircases.
I. Raised Seats of Chapel.
J. Vestry 30 feet by 15 feet.
K. Class Rooms.
L. Bed Rooms.
M. Kitchens.
N. Closets.
O. Pantries.
P. Sitting Rooms.
Q. School Lantern Light.

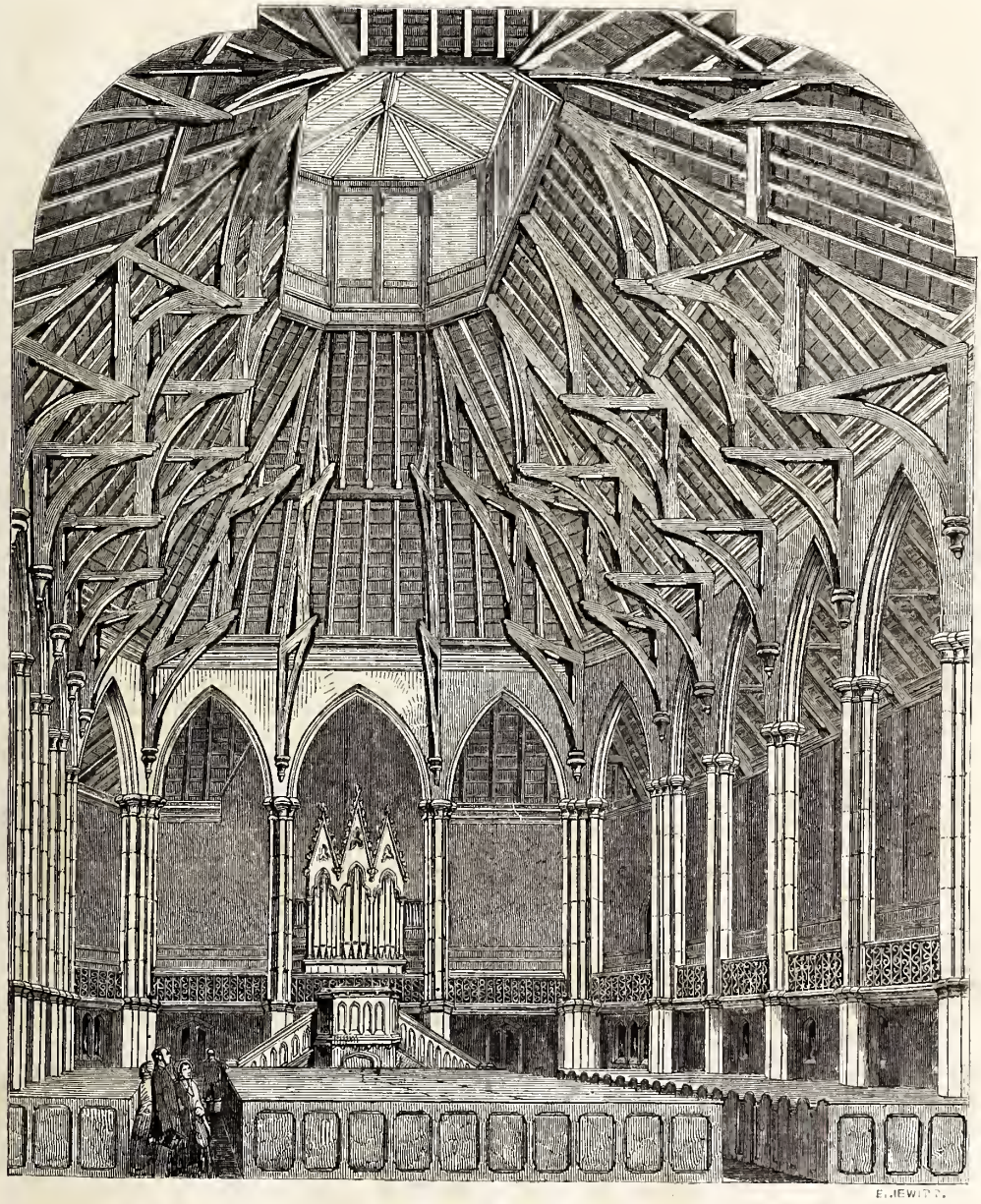


GALLERY PLAN.

The style of Chapel building has undergone very marked improvement within the last half century. It was said to the reproach of the Jews, during the reign of Darius, that while they themselves dwelt in "ceiled houses," they suffered the house of God to "lie waste." For a long series of years a similar reproach might have been cast upon a large portion of professing Christians, who, if they did not allow their places of worship to "lie waste," at least bestowed far less pains upon them than upon their own habitations. Chapels were, with but very few exceptions, dull, heavy brick buildings, with square windows and ordinary house doors, destitute of pediment, porch, or pillar, and utterly devoid of all pretensions to architectural taste. But a pleasing change has taken place: almost every town has now ecclesiastical edifices which reflect credit alike on the skill of the architects, and the munificence of the founders.

The ancient city of Winchester presents an interesting example. In Jewry-street, one of the most public and respectable localities in the city, buildings are now in course of erection, for the use of the Independents, of which the accompanying engravings furnish correct representations. The Chapel, as our readers may perceive, will be in the early English style. It will be 68 feet long and 54 feet wide in the clear. The front elevation will be formed of white hard bricks, with Bath stone facings. The roof is to be open, and supported by eighteen fluted stone columns, with moulded arches. The light will be obtained, chiefly and necessarily, from a large lantern above. The Chapel is intended to accommodate about 400 persons on the central ground floor; raised seats, to be placed round the Chapel, will furnish room for 300 more; thus providing seat room for 700 persons. Space and other arrangements are provided for a gallery, should it be required, so that, altogether, there will be ample seat room for 1,000 persons.

Immediately behind the Chapel, and on a level with its floor,



INTERIOR OF WINCHESTER CONGREGATIONAL CHAPEL.

a spacious and airy School-room is to be erected, nearly 54 feet square. This is intended to be occupied both as a Sunday and Day School; the latter to be conducted on the British system. To this School-room there will be four entrances, two in the front, and two in the rear. There will be play-room for the children behind, cloak and hat-rooms within, and abundance of light from above. It is intended, further, to erect a gallery all round the School-room, twelve feet high, and sixteen feet wide. On this will be constructed a large vestry, two class-rooms for senior scholars, and two separate dwelling apartments for the Schoolmaster and the Chapel-keeper. The Chapel and the

School-room are to be lighted with gas, and properly warmed with a hot-water apparatus.

The entire expense of this erection is not to exceed Three Thousand Seven Hundred and Fifty Pounds.

It is our intention, as opportunity may offer, to present our readers with representations of such churches or chapels as may possess novelty of design or beauty of execution.

MATTHIOLI:—THE IRON MASK.

The mystery which, for more than a century and a half, has enveloped the identity of the "Man of the Iron Mask," has been one of the most active sources of public curiosity throughout the whole period which has passed since his time. Numerous theories have been put forward, all with some semblance of probability, yet all unsatisfactory. Only one solution of the mystery, however, is supported by sufficient evidence to entitle it to acceptance. It is the result of M. Delort's examination of the archives of the French government, in which he found the correspondence of the French ministers of that time, which proved, beyond a doubt, that the mysterious prisoner was an Italian of the name of Matthioli.

This individual, about whose fate so much romantic interest has been excited, was secretary of state to Charles third duke of Mantua, by whom he was much favoured. Towards the end of the year 1677, the Abbé D'Estrades, ambassador from Louis XIV. to the republic of Venice, was anxious to induce the Duke of Mantua to allow the entrance of a French garrison into Casale, which was, in a great measure, the key of Italy. D'Estrades thought to effect his purpose by gaining over Matthioli to his schemes. The secretary readily lent himself to the accomplishment of the wily ambassador's object, and wrote a letter to the abbé in which he offered to devote himself entirely to the interests of the French king. In the course of the treaty between Louis and the duke, it was proposed to send Matthioli to the French court. This arrangement did not meet with the approbation of D'Estrades, who used his best efforts to delay the secretary's journey to Paris. He succeeded in postponing it from spring to autumn, when Matthioli arrived at the French capital about the end of November, 1678. His stay was short; after an interview with Louis, who received him with much favour and gave him a ring of great value, as an earnest of his future gifts, the Italian returned to Mantua. The advance of the French troops to garrison Casale, caused great alarm to the neighbouring states. Remonstrances were made to Charles, which his secretary secretly supported, though he continued to be the apparent ally of the French agents at the ducal court. His duplicity, however, could not long be concealed; and suspicions of his fidelity to the interests of Louis strengthened into actual evidence of his treachery. The French ambassador reproached and threatened, but to no purpose; the unprincipled secretary, in the very face of his proved unfaithfulness, still assured the agents of Louis of his firm adherence to their master's interests, but informed them that the Duke of Mantua had been obliged to conclude a treaty with the Venetians, the object of which was directly opposed to that entered into with the French. M. Pinchesne, the French agent at Venice, though convinced of the perfidy of Matthioli, did not break with him, but advised him to go and confer with D'Estrades at Turin: the secretary followed this advice, and thus fell into the plot which had been concocted for his ruin.

Disappointed in his political intrigues, the vindictive Louis had resolved to take signal vengeance on the treacherous frustrater of his plans. He accordingly sent orders to the abbé to arrest Matthioli, and guard him in such a manner, "that not only may he not have communication with any one else, but that he may have cause to repent of his own bad conduct." During his negotiations with D'Estrades at Turin, Matthioli complained to the abbé of want of money; the ambassador readily caught at a circumstance so favourable to the execution of the plan which he had to accomplish, and recommended him to meet Catinat at the French frontiers, near Pignerol, where D'Estrades would also be present. The doomed secretary again aided in the accomplishment of his own ruin by doing as the abbé suggested. Three miles from the place of rendezvous they were stopped by a river, the bridge of which had been a short time before broken down by a flood. Matthioli himself assisted to repair the bridge over which he was to pass into the most hopeless and wretched of all captivities. Being questioned at the conference with Catinat, he informed those present where all the original papers relative to the delivery of Casale would be found, though it seems that the statement then made in reference to these documents was false, as they were afterwards discovered concealed in a well at Padua. At the end of the conference he was arrested without ceremony, and after his arrest no one was permitted to approach him. The most extraordinary precautions were taken to prevent his discovery, particularly that of obliging him to wear a mask during his journey when he saw any one, to conceal this violent breach of the law of nations, Matthioli being at this time plenipotentiary of the Duke of Mantua for concluding a treaty with France; and the same reasons for concealment existed till his death, since that event happened while both Louis and the Duke of Mantua were still alive. This accounts for his confinement being always solitary and secret; one act of diplomatic treachery, however, could never warrant the infliction of the most horrible of all punishments, solitary confinement, attended by such rigours as his were, for twenty-four years in a dungeon; but Louis, whether as a man or a sovereign, was one of the most cruel and tyrannical characters to be met with in the whole range of history.

For the first few days of his imprisonment Matthioli was well treated, but his gaoler afterwards received instructions to the effect, that "It is not the intention of the king that Sieur de Lestang,"—the name given to him,—"should be well treated, nor that, except the absolute necessaries of life should he have anything given to him, that may make him pass his time agreeably." Repeated injunctions, to this effect, are a proof how much importance the rancorous Louis attached to his victim being compelled to drink his bitter draught of captivity to the very dregs. The harshness of his treatment and the utter hopelessness of relief or liberty seem to have affected the intellect of Matthioli, as his gaoler reports that in his frenzy and despair the wretched prisoner used to give way to the most violent paroxysms of mental derangement, during which he found vent for his rage by writing with charcoal abusive sentences upon Louis on the walls of his prison. A mad Jacobin monk, who was confined in the same prison, was put into the cell with Matthioli, but died after their removal to another and more wretched prison at Exilles. After the death of the monk, Matthioli was again removed to the island of St. Margaret, on the coast of Provence. During the journey he was conveyed in a chair covered with oil-cloth, that the possibility of his being seen or spoken to might be prevented. It was during this journey, there is reason to believe, that the permanent use of the mask, which he was afterwards compelled to wear till his death, began. This mask was not made, as has been erroneously supposed, of iron, but of black velvet, strengthened with whalebone, and fastened behind by a padlock.

Amongst the anecdotes given of this prisoner, who has so long been the object of so much general curiosity, it has been mentioned that he wrote his name and rank with the point of a knife on a silver plate and threw it out of his window, and that it was picked up by a fisherman who brought it to the gaoler. The fisherman, having satisfied the man that he could not read, was released. Again, it is said that he covered one of his shirts with writing, and threw it also out of his window, and that a monk having found it took it to the governor of the prison, with a declaration that he had not read it, but two days afterwards he was found dead in his bed.

After eleven years' confinement at St. Margaret's, Matthioli was removed to the Bastile. The same secrecy as before prevailed during his journey to Paris. At dinner he sat with his back to the light, and his gaoler opposite to him, with a brace of pistols on the table. While at the Bastile, he was on a few occasions allowed to go to mass, but the guards had strict orders to shoot him if he spoke to any one. At length he died, at the

age of sixty-three, after five years most rigorous confinement in a dungeon of the Bastile. After his death, everything was done that could destroy all traces of his former existence: his clothes were burned, as well as the furniture of his cell; all plate of every kind was melted down, the walls of the dungeon were scraped and then whitewashed, the floor was newly paved, the old ceiling taken down, the doors and windows burnt, and every corner most rigidly searched.

It has been stated, on more than one authority, that Louis XV. well knew who the celebrated state prisoner really was, and affirmed more than once that he was the minister of one of the Italian princes; but this confession was considered at the time only as an evasion to put a stop to a more rigid inquiry. But let the unhappy victim be whom he might, the atrocious and persevering revenge of which he was the object deserves the heartiest execration of all future posterity. His perfidy may have been great, but outraged humanity will not accept it as palliation or excuse for the barbarous and continued cruelties which he suffered at the hands of the execrable Louis.

A MEDIÆVAL PASSPORT.

The following characteristic *feuille de route* of a traveller in the middle ages explains itself, and is worth copying:—

"To you, holy lords, bishops established in your apostolic sees, abbots, abbesses; to all you fathers in Jesus Christ; to you dukes, counts, governors, captains, and other officers; to all you who believe in and fear God; I, an unworthy sinner, the least of the servants of God, bishop or abbot of ——, where repose the mortal remains of the ever-blessed martyr (or confessor) ——, wish eternal salvation in God.

"I give you to understand that the traveller named ——, born at ——, in ——, has come to me and has asked of me advice about a sin which he has committed at the instigation of the common enemy. In accordance with canonical custom, I have decreed that this man must place himself in the condition of those who go on pilgrimages for the redemption of their souls. Know, then, that when he shall present himself to you, you must by no means think evil of him, or seize his person, but, on the contrary, provide him with a lodging, fire, bread, and water; then, without seeking for a recompense, permit him to pursue his journey to the holy places.

"Act thus, for the love of God, and the respect of the holy father (the pope). You shall obtain your reward in eternal life; for in this stranger it is Jesus Christ whom you shall have received and nourished. Remember that the Lord has said: 'I was a stranger, and you took me in;' and again, 'Inasmuch as you have done it unto the least of these my brethren, you have done it unto me.' But to what purpose is a long exhortation? A word is sufficient for the wise. I commend myself to your prayers. Be strong in Jesus Christ, and become worthy of the dwelling-place of angels."

THE LYRE BIRD.

At the close of the last century, the Governor of New South Wales endeavoured to check the roving propensities of certain turbulent Irishmen by corporeal punishment; but as this did not prove effectual, he determined to convince them of the difficulties and dangers of a wandering life, by actual experience. Four of the hardiest of them were therefore chosen, and fitted out for a journey of discovery, under the charge of three trusty guides, who were to lead them back, when fatigued and exhausted with their journey, over the most difficult and dangerous part of the country. A conspiracy to murder the guides was detected before the party set out, and it was consequently increased by the addition of four soldiers, and began its enterprise on the 14th of January, 1798. The project of the Governor completely succeeded. On the 24th the soldiers returned with three of the Irishmen, who, on gaining the foot of the first mountains, were so greatly fatigued, and also so fearful of the prospect before them, that they asked to be allowed to return with the soldiers. The rest of the party returned on the 9th of February. They appear to have travelled about one hundred and forty miles in a south-west direction from Paramatta.

They brought in with them a bird, which they called a pheasant; it resembles the common one in size, but its limbs are longer in proportion, and there are other considerable points of difference. The wings are short, concave, and rounded, and the quill feathers are lax and feeble; the general plumage is full, deep, soft and downy. The tail, however, is very remarkable: it is modified into a beautiful, long, plume-like ornament, representing, when erect and expanded, the figure of a lyre; hence its name—the Lyre Bird, while as the type of a new genus, it has received the appellation of *Menura superba*.

This ornamented tail is restricted to the male bird. It consists of sixteen feathers; of these the outer one on each side is broadly but loosely webbed within, its outer web being narrow; as it proceeds it curves outwards, bends in, and again turns boldly outwards and downwards, both together resembling the framework of an ancient lyre, of which the intermediate feathers are the strings; these feathers, except the two central, which are truly but narrowly webbed on the outer side, consist each of a slender shaft, with long filaments, at a distance from each other, and springing out alternately. The appearance of these feathers, the length of which is about two feet, is peculiarly graceful; their colour is amber-brown, but the two outer tail-feathers are grey tipped with black, edged with rufous, and transversely marked on the inner web with transparent triangular bars. In the female the tail is long and graduated, and the feathers are perfectly webbed on both sides of the shaft, although their texture is soft and flowing. The general plumage of the *Menura* is amber-brown above, tinged with olive, and merging into rufous on the wings, and also on the throat. The under parts are ashy-grey. Mr. Gould says that, were he requested to suggest an emblem for Australia among its birds, he would select the Menura or Lyre Bird as the most appropriate, being not only strictly peculiar to Australia, but as far as is yet known, to the colony of New South Wales.

The bird is exceedingly shy, and hence the same eminent Naturalist says: "While among the bushes I have been surrounded by these birds, pouring forth their loud and liquid calls for days together, without being able to get a sight of them; and it was only by the most determined perseverance, and extreme caution, that I was enabled to effect this desirable object, which was rendered the more difficult by their often frequenting the most inaccessible and precipitous sides of gullies and ravines, covered with tangled masses of creepers and umbrageous trees: the cracking of a stick, the rolling down of a small stone, or any other noise however slight, is sufficient to alarm it; and none but those who have traversed these rugged, hot, and suffocating brushes can fully understand the excessive labour attendant on the pursuit of the Menura. Independently of climbing over rocks and falling trunks of trees, the sportsman has to creep and crawl beneath and among the branches with the utmost caution, taking care only to advance when the bird's attention is occupied in singing, or in scratching up the leaves in search of food. To watch its actions it is necessary to remain perfectly motionless, not venturing to move even in the slightest degree, or it vanishes from sight as if by magic."

In some of the more accessible bushes, it may, however, be frequently seen, and even on horseback be closely approached, the bird apparently showing less fear of a horse than a man. The bird is sometimes pursued by dogs trained to rush suddenly upon it, when it immediately leaps upon the branch of a tree, and, its attention being attracted by the dog which stands barking below, it is easily approached and shot. Another mode of capturing this bird is by wearing the tail of a full-plumaged male in the hat, keeping it constantly in motion, and concealing the person among the bushes, when the attention of the bird being arrested by the apparent intrusion of another of its own sex, it will be attracted within the range of the gun. If the bird be hid from view by surrounding objects, a shrill whistle, or any other unusual sound will generally induce it to show itself for an instant, by causing it to leap with a gay and sprightly air upon some neighbouring branch, to ascertain the cause of the disturbance, when it easily becomes the prey of an expert shot.

"It is much to be regretted," Mr. Bennett justly remarks, "that human beings are so eager to destroy, even to exter-

mination, the races of animals, useful or dangerous, which may be found in a new country. . In the settled parts of a colony, the harmless kangaroos and emus are rarely seen, when they might be easily domesticated about the habitations. The same remark applies to the Lyre pheasant. Why are they not domesticated before, by extermination, they are lost to us for ever?"

These birds build in old hollow trunks of trees which are lying on the ground, or in the holes of rocks. The nest is merely formed of dried grass, or dried leaves scraped together. The female lays from twelve to sixteen eggs, of a white colour, with a few scattered light blue spots. One nest was observed placed on a prominent point of a rock, in a situation quite secure from observation from behind, but affording the bird a commanding view and easy retreat in front. It was of large size, formed outwardly of sticks; it was deep and basin-shaped, and lined inwardly with the inner bark of trees and fibrous roots; and it had the appearance of having been roofed.

The Lyre bird is of a wandering disposition, and though keeping probably to the same brush, it constantly traverses it from one end to the other, from the mountain top to the bottom of the gullies. It is said to be able at one leap to pass over as much as ten feet in a perpendicular direction from the ground. It seldom takes wing, but is fond of traversing trunks of fallen trees, and frequently reaches a considerable height, by leaping from branch to branch.

Solitary in its habits, it sometimes shows a different disposition. On one occasion Mr. Gould saw two males at play; they were chasing each other round and round with extraordinary rapidity, pausing every now and then, to utter their loud shrill calls. While thus occupied they carried their tails horizontally, as they always do when moving quickly through the brush; that being the only position in which this large organ could be conveniently borne at such times.

The Lyre bird has a habit similar to that of some others, of forming small round hillocks, which are constantly visited by day, and on which the male is continually trampling, at the same time gracefully erecting and spreading out its tail, uttering its various cries, pouring forth its natural notes, mocking those of other birds, and even imitating the barking of the native dog. It has not only a loud full call, which may be heard reverberating over the gullies at a considerable distance, but an inward and varied song, the notes of which can only be heard within a few yards of the bird. This animated strain is frequently broken off abruptly, and again resumed with a low inward snapping noise, ending with an imitation of the loud and full note of the satin-bird, and always accompanied with a tremulous motion of the tail.



THE LYRE BIRD.

THE LAKE OF THRASYMENE.

The names of places become as indissolubly connected with those of individuals as with the soil to which they belong. Events in the world's history unite them by bonds of association which time only cements and strengthens. Who hears of Marathon, and forgets Miltiades? or of Thermopylæ, and keeps not in "everlasting remembrance" Leonidas and his three hundred Spartans? Who of Actium, and thinks not of Antony and the Egyptian queen? Or who, again, in future ages, will speak of Waterloo, and forget the names which have made it one of the great places of the earth? So with Thrasymene: more than two thousand years have rolled by; nations, like men, have come upon the stage of time, reached the maturity of their greatness and their

For those who are unacquainted with the topography of this celebrated lake, we may mention that it lies in central Italy, in the province of Perugia, near the Tuscan frontier. It is nearly circular in shape, and about thirty miles in circumference, with an average depth of thirty feet. It contains three small islands, two of which are seen in the engraving, towards the north, the larger one being the Isola Maggiore; the third, called Polrese, lies at the opposite side of the lake. On the north, east, and south it is almost entirely walled in by hills, but its western coast is open, and merges into the plain of Cortona. It is fed by springs which rise from its bed, and having no natural outlet for its water, formerly overflowed its banks during seasons of rain, at which



THE LAKE THRASYMENE.

glory, and then passed away for ever; but Hannibal and Thrasymene are still united. The Carthagenian hero has given to the lake an historic fame which no cycles of time can weaken or destroy. Men may give to it a new name, but the "Lago di Perugia" can never throw oblivion around "Thrasymene." Whilst the name of Hannibal remains a "household word," the scene of his victory will never be forgotten. The beauty of the sky above it, of its own calm, limpid waters, of its verdant banks, and of the picturesque towns and villages which lie scattered along its shores, will never fail to fill the mind of the traveller with admiration and delight; but the interest arising from its historic associations will surpass them all.

times numerous streams run into it from the neighbouring hills. To prevent the mischief occasioned by these floods, a tunnel or emissary, which is entirely cased with masonry, was made through a hill on the south-eastern bank of the lake, opposite to the island of Polrese. On issuing from this artificial channel the water flows into a canal, serving as a motive power for several mills, and after a course of two miles enters the river Caïna, which is an affluent of the Nestore, which latter river empties itself into the Tiber, and thus into the sea. The best view of this magnificent sheet of water and its surrounding scenery is to be had from the hills of Spelonca, between Ossia and Passignano, on the high road from Florence to Perugia. As

seen from this stand-point, its beauty can hardly be exaggerated.

Thus much, topographically, of the lake of Thrasymene: of the battle fought upon its banks, and from which all its historic interest is derived, let Polybius tell us.

"Having ascertained the exact position of the consular forces," says the historian, "Hannibal marched directly towards Rome, keeping the city of Cortona and the neighbouring hills on his left, and the lake of Thrasymene on his right. At the same time, in order to excite the wrath of Flaminius, whichever line of march he might adopt, he laid waste everything by fire and sword. Finding that the enraged consul was now rapidly approaching, Hannibal fixed upon an advantageous position, and prepared for battle. There is a large plain environed by a chain of mountains, in the centre of which is a small, but rugged and almost inaccessible hill. Behind this lies the lake, between which and the mountains runs a narrow pass leading to the inner plain. Planting his Spaniards and Africans on this hill, Hannibal stationed his Balearic and other light-armed troops on the acclivities to the right of the valley, and by placing his cavalry and Gallic forces in ambuscade along the sides of the defile, prepared a trap for the approaching army of the consul. Having thus arranged his troops, he passed the night silently and at rest. In the meantime Flaminius had been making a vigorous pursuit, and approached the lake about sunset. He encamped for the night, and early next morning prepared to lead his forces through the narrow defile which led to the Carthaginian army. The day was thick and misty, owing to a fog which rose from the lake and the adjacent mountains. When the greater part of the Roman army had passed through the defile, and its advanced guard approached near to the Carthaginian lines, Hannibal, having ordered the ambuscade to close in upon their rear, gave the signal for battle, and fell upon the Roman flanks. Thus suddenly and unexpectedly attacked on all sides, Flaminius and his troops were thrown into utter disorder; the fog thickening at this juncture increased their confusion, and rendered them unable to offer any combined or effectual resistance to the foe. Flaminius, losing all presence of mind, became unable to regulate the movements of his legions, and thus they were left entirely exposed to the fury of the enemy, who kept up a vigorous onslaught on the front, rear, and flanks of the disorganised masses of the Roman soldiery. Maddened by despair at the ruin of his army, the consul threw himself into the midst of a band of Gauls, and fell beneath their swords. Of the Roman soldiers who, though they could not fight, stood firm unto the end and made no attempt to escape, about fifteen thousand perished miserably on the plain. The fate of those who were surprised in the passage of the defile was still more miserable. Driven into the lake, some attempted to swim in their armour, but sunk under its weight; by far the greater number waded into the water as far as they could, and there endeavoured to evade the fury of the foe, but were pursued by the Carthaginian cavalry. Many were thus slain, and the remainder, preferring a less disgraceful death, put an end to their own wretched lives, after having implored mercy in vain. Of the whole Roman army only about six thousand escaped death; these, who had belonged to the vanguard of the consular army, succeeded in forcing their way through the Carthaginian lines to the hills beyond. From these they beheld the total destruction that had fallen upon their own army, and seeing that the whole plain was in possession of the victors, they endeavoured to effect a retreat to a small town in Etruria. Maharbal was despatched in pursuit, with the Spaniards and light-armed corps, and surrounding the village in which the Romans had taken refuge, he offered them their lives on condition of surrender. Overcome by their misfortunes, and placing faith in the offer of the Carthaginian lieutenant, they submitted. Thus ended the famous battle between the Romans and Carthaginians, which was fought on the banks of the lake of Thrasymene."

Such is the account given by the Greek historian of this memorable fight between the armies of the rival republics. During the battle, or rather slaughter, an earthquake is said to have taken place, but it was unfelt by the combatants. In Livy's account of the disaster, he says: "And so great was their mutual animosity, so intent were they upon the battle, that the earthquake, which levelled in great part many of the cities of Italy, which turned the course of rapid streams, poured back the sea upon the rivers, and tore down the very mountains, was not perceived by any of those who were fighting." Doubtful abstraction!

Byron makes the following reference to this incident in his Childe Harold:—

"I roam
By Thrasimene's lake, in the defiles
Fatal to Roman rashness, more at home;
For there the Carthaginian's warlike wiles
Come back before me, as his skill beguiles
The host between the mountains and the shore,
Where Courage falls in her despairing files,
And torrents, swoll'n to rivers with their gore,
Reek through the sultry plain, with legions scattered o'er,

Like to a forest fell'd by mountain winds;
And such the storm of battle on this day,
And such the frenzy, whose convulsion blinds
To all save carnage, that, beneath the fray,
An earthquake reel'd unheededly away!
None felt stern Nature rocking at his feet,
And yawning forth a grave for those who lay
Upon their bucklers for a winding sheet!
Such is the absorbing hate when warring nations meet.

* * * * *

Far other scene is Thrasimene now;
Her lake a sheet of silver, and her plain
Rent by no ravage save the gentle plough;
Her aged trees rise thick as once the slain
Lay where their roots are; but a brook hath ta'en—
A little rill of scanty stream and bed—
A name of blood from that day's sanguine rain;
And Sanguinetto tells ye where the dead
Made the earth wet, and turned the unwilling waters red.

Since that memorable disaster, which carried so severe a blow to the heart of ancient Rome, the lake of Thrasymene has never been the theatre of any great historic event; the armies which have passed along its shores have not disturbed its peace; the flight of the bird, the oar of the fisherman, the occasional song of the villagers, busied afar at their industry, these are the only sounds which disturb the vast silence of that poetic solitude.

MAURICE RETSCH.—PEGASUS IN HARNESS.

Maurice Retsch is at the present day, if not the first, at least the most popular and most admired of the German artists. In choosing his vocation, he has followed rather the bent of his own quiet tastes, and the instincts implanted in him by nature, than the allurements of fame or ambition. His life has been essentially a quiet and retired one. Living in a pretty rural cottage, in a picturesque and romantic situation near Dresden, he seems to revel in the glorious scenery which surrounds his native town, to seek pleasure only in his home, and to practise his art merely because he himself loves it. He dwells upon a small patrimony which has been the property of his family for generations back; and having married a simple but earnest and high minded girl, the daughter of one of his father's neighbours, he seems never since to have known sorrow or disappointment. He has no children; but this has never cast a cloud over the mutual confidence and affection which have ever existed between himself and his wife; and with a charming exhibition of tasteful and delicate sensibility, on every anniversary of their wedding day he presents her with one of his own drawings. These have been all preserved in an album; and we are told by Mrs. Hall that no lover of artistic beauty, and depth of feeling and imagination can enjoy a greater treat than an examination of its contents.

Retsch is not a painter in the ordinary sense of the word. He is more remarkable for the great breadth and truth of his conceptions, than for the elaborateness of his embodiment of them. He does not depict upon canvas with laborious minuteness the glories of scenery, or striking traits of physiognomy. He is a designer in the highest acceptation of the word. He seldom copies anything but ideas, they may be his own, or they may be those of others, but still ideas which never before have assumed

tangible, visible, proportions. All his drawings or sketches are consequently distinguished by their force and originality. Upon examining them we cannot say that they are like anything we have seen before; we cannot recognise in them any striking resemblance to any great and well known original, but we are, nevertheless, astonished by their *truth* and power. Retsch is intensely German. He has all the earnestness and depth of thought, and kindly domesticity of feeling, which characterise his countrymen; the great love of home and home enjoyments, the tender susceptibility to the influence of early associations, which prompts them to sing so loudly and so melodiously of "Fatherland," without any of the phlegmatic dreaminess and misty profundity which renders them unable to defend it against home tyranny or foreign inroads. No wonder, then, that he has entered fully and deeply into the wild but fascinating strains of Schiller and Goethe, and has marvellously realised the fantastic conceptions of their wonder-working genius. The result has been that some of his finest and most striking sketches are illustrations of their works. It would seem almost as if it had been assigned to Retsch to do with the pencil what Schiller does with the pen, so faithfully is the same idea rendered by two modes so widely dissimilar.

Schiller was not generally thought to possess any humorous talent. Most of his greatest and best known pieces are full of the wild and almost unearthly romance of passion which characterise many of Byron's works. Like the Greek tragedians, he mostly portrays griefs and heights of sorrow, sternness or ferocity, too deep and too far removed from the ordinary course of human events to evoke much of our sympathy. Like the rehearsal of the "woes of Electra," and the "sorrows of Hecuba," he often excites our admiration, but does not often call forth expressions of feeling. But to assert that Schiller was humorous, would, in the eyes of many, be an insult to the poet's genius. And yet many of his lighter pieces prove it. Six of what are called the *Suppressed Poems* are full of humour, but most of these were composed in youth, and we do not find that in his mature age he ever indulged in this vein except in the *Pegasus in Harness*.

Into the spirit of this last Retsch fully entered, and we present our readers with engravings of the drawings which he made to illustrate it. Most people are doubtless already in possession of the old mythological story about the winged horse Pegasus, said to have sprung from the blood of the dragon Medusa, when slain by Perseus, how he fixed his residence on Mount Helicon, where, by striking his foot on the ground, he raised the fountain Hippocrene; how he became the favourite of the Muses, and being tamed by Neptune or Minerva, was given to Bellerophon to conquer the Chimæra; and how when this monster was destroyed, Bellerophon wanting to fly to heaven, Jupiter, to punish his presumption, sent a gadfly to torment his charger, which immediately became restive and threw him, and continuing his flight to the upper regions, was finally placed amongst the constellations.

This fantastic story had furnished materials to many of the old classic poets. Hesiod, Homer, Horace, Ovid, and even Apollodorus and Lycophron the *Tenebrosus*, had all rung changes upon it, but all treated it with due solemnity, and looked at it in the sublime light. Schiller determined to handle it in the ridiculous vein, and succeeded admirably, making a German farmer purchase Pegasus at a fair, and presenting an amusing picture by showing how badly the lofty aspirations and stately capers of the celestial animal consorted with the humble duties in which his owner wished to employ him. Every one who possesses an acquaintance with any language besides his own, knows how difficult it is to preserve in a translation the delicate turns of expression, and peculiar associations from which every comic piece derives so much of its humour and raciness. An attempt has been made by E. A. Bowring to render this piece of Schiller's into English, and although it has proved by no means a happy one, still we know of no other that has succeeded so well, and we therefore present it to our readers for want of a better.

"Once to a horse fair,—it may perhaps have been
Where other things are bought and sold—I mean
At the Haymarket—there the Muses' horse
A hungry poet brought,—to sell of course.
The hippogriff neighed shrilly, loudly,
And rear'd upon his hind legs proudly;
In utter wonderment each stood and cried:
"The noble regal beast! But woe betide,
Two hideous wings his slender form disgrace."
"The breed," said they, "is doubtless rare,
But who would travel through the air?"
Not one of them would risk his gold.
At length a farmer grew more bold;
"As for his wings, I no use should find them,
But then how easy it is to clip or bind them!
The horse for drawing may be useful found,—
So friend I don't mind giving twenty pound!"
The other glad to sell his merchandize,
Cried "Done!"—and Hans rode off upon his prize.
The noble creature was ere long put to,
But scarcely felt the unaccustomed load,
Than, panting to soar upwards, off he flew,
And, filled with honest anger, overbrew
The cart, where an abyss just met the road.—
"Ho! ho!" thought Hans, "no cart to this mad beast
I'll trust. Experience makes one wise at least.
To drive the coach to-morrow, now, my course is,
And he as leader to the team shall go;
The lively fellow 'll save me full two horses,
As years pass on he'll doubtless tamer grow."
All went on well at first. The nimble steed
His partners roused—like lightning was their speed.
What happened next? Tow'rd heaven was turned his eye,
Unus'd across the solid ground to fly,
He quitted soon the safe and beaten course,
And, true to nature's strong, resistless force,
Run over bog and moor, o'er hedge and pasture till'd;
An equal madness soon the other horses fill'd.
No reins could hold them in, no help was near—
Till—only picture the poor travellers' fear!—
The coach, well shaken and completely wreck'd,
Upon a hill's steep top at length was check'd.
"If this is always sure to be the case,"
Hans cried, and cut a sorry face,
"He'll never do to draw a coach or wagon.
Let's see if we can tame the fiery dragon
By means of heavy work and little food."
And so the plan was tried. But what ensued?
The handsome beast, before three days had passed,
Wasted to nothing. "Stay! I see at last!"
Cried Hans. "Be quick, you fellows! yoke him now,
With my most sturdy ox, before the plough!"
No sooner said than done. In union queer,
Together yoked were soon wing'd horse and steer.
The griffin pranced with rage, and his remaining might
Exerted to resume his old-accustomed flight.
'Twas all in vain; his partner stepped with circumspection,
And Phœbe's haughty steed must follow his direction—
Until at last, by long resistance spent,
When strength his limbs no longer was controlling,
The noble creature, with affliction bent,
Fell to the ground, and in the dust lay lolling.
"Accursed beast!" at length, with fury mad,
Hans shouted, while he soundly plied the lash;
"Even for ploughing, then, thou art too bad.
That fellow was a rogue to sell such trash!"
Ere yet his heavy blows had ceased to fly,
A brisk and merry youth by chance came by.
A lute was tinkling in his hand,
And through his light and flowing hair
Was twin'd with grace a golden band.
"Whither, my friend, with that strange pair?"
From far he to the peasant cried,
"A bird and ox with one yoke tied!
Was such a team e'er heard of, pray?
Thy horse's worth I'd fain essay;
Just for one moment lend him me—
Observe, and thou shalt wonders see!"
The hippogriff was loosen'd from the plough—
Upon his back the smiling youth leap'd now.
No sooner did the creature understand
That he was guided by a master hand,
Then 'gainst his bit he champ'd, and upward soar'd,
While lightning from his flaming eyes outpour'd,



THE POET BRINGS PEGASUS TO THE FAIR.



THE FARMER BUYS PEGASUS.



PEGASUS IS YOKED IN A CART.



PEGASUS OVERTURNS THE CART.

No longer the same being, royally,
A spirit, aye a god, ascended he—
Spread, in a moment, to the stormy wind
His noble wings, and left the earth behind;
And ere the eye could follow him,
Had vanish'd in the heavens dim.

The story of Pegasus is a striking parallel to Schiller's own career. He, too, was in truth the favourite of the muses; and he, too, spurned the ordinary pursuits of every day life, that he might fly unshackled through the regions of fancy. A hymn written in childhood inspired his parents with the idea that he was peculiarly adapted for the church; the Duke of Würtemburg, his fathers's patron, wished to place him in a college which he had founded a short time previously, that he might there study the law. But young Schiller could never reconcile himself to the dry drudgery which it entailed, and soon exchanged it for medicine, not with the view of pursuing it as a profession, but as the less of two evils, one of which the wishes of his friends made necessary.

But his leisure hours were always devoted to more congenial pursuits, and in the works of Shakspere, Klopstock, Goethe, Herder, and Gerstenberg, he found the pleasureable excitement which his more strictly legitimate occupations denied him. After taking his degree he was attached as physician to a grenadier battalion, with a small salary, and soon after published "The Robbers," the most celebrated of his works. The story was gloomy, the incidents improbable, and much of the writing fantastic. But its faults were universally acknowledged to be caused by youthful enthusiasm and inexperience, which it wanted but time to correct. The sensation it excited all over Germany was profound and lasting, and as all the petty princes of that country are bitter enemies of "sensations" of any sort, the piece met with anything but a favourable reception from the authorities. The hero being impassioned and romantic, and the captain of a band of robbers, it was alleged that great numbers of young men of respectable families were beginning to stop travellers on the highway, and demand their purses in a spirit of poetic fervour and enthusiasm. The play was, therefore, denounced as immoral, and destructive of domestic happiness. Schiller upon one occasion, surprised and delighted at the noise his work was making, paid a secret visit to Mannheim for the purpose of seeing it acted. His disguise did not save him from recognition, and on his return he was put under arrest for a week. But his high spirit could not brook the petty tyranny and annoyance of military discipline, so he took final leave of the service, and fled again to Mannheim, where he received a cordial reception from the director of the theatre, who supplied him with money for his immediate wants.

He now applied himself wholly to literature, and published works in rapid succession, the mere enumeration of which would fill a page of our space. He died in 1805, with the calm heroism of a christian philosopher. But the works he has left behind him will for ever leave a spell of magic power in his very name. His countrymen idolise his memory, and foreign nations, though seeing him through the necessarily indistinct medium of a strange language, acquiesce in the justness of their homage. What endeared him most of all to his compatriots, was the lofty character of his enthusiasm, which believed all things and hoped all things, and the chivalrous philanthropy which saw something good in all mankind. He framed for himself an ideal standard of excellence, and believed in the possibility of its attainment; he formed for his own use a mystical but symmetrical religious creed, and embraced it with all the fiery earnestness of his character. Those who differed from his opinions could not, at all events, help admiring the lofty energy and straightforwardness of him who held them. The deep spirit of poetry which pervaded his writing pervaded his life also, and this, combined with the genuine sincerity and simplicity of his character, obtained as much respect and veneration for the man, as his works secured admiration for the author. Few possessed a larger amount of these kindred feelings than Maurice Retsch, and none has given expression to them in forms so lasting. The simple-minded, tender-hearted, and enthusiastic artist could well and truly sympathise with the high-souled and ardent poet; and the same faithful pencil which assures his wife, in old age, of the lasting affection of the husband of her youth, may well link the graceful creations of a rich and glowing fancy to the immortal breathings of one of the finest geniuses of his German fatherland.

FACTS IN THE HISTORY OF ANIMAL MAGNETISM.

The history of animal magnetism furnishes some of the most remarkable illustrations on record of the influence, through the imagination, of the mind upon the body, and of the disposition in human nature which has led men, in all ages and nations of the world, to believe in the existence and agency of supernatural powers. A brief sketch, therefore, of its nature and of some facts connected with its operation, may not be without interest.

The phenomena which animal magnetism has been conceived to produce in those to whom its agency is applied, may be comprehended under two classes; those which occur whilst the person operated upon remains awake, and those which take place whilst he is asleep, or in a state resembling sleep. To the former class of effects belong, *first*, various sensations, more or less painful, experienced particularly in those parts of the body which form the seat of disease, and which enable the practitioner to detect where that seat actually is; *secondly*, convulsive and other nervous affections, which have been regarded by the advocates of this agency as salutary crises; and, *thirdly*, the removal of all diseases with which the magnetised patient may be affected, the magnetic influence proving in this respect an universal curative of disease and preservative of health.

To the second class of effects under which magnetic phenomena may be included, belongs the power which magnetised persons are said to acquire of carrying on a continued conversation with the operator, without being at all sensible of the presence of others, and sometimes in a language, and upon matters, with which, in a wakeful state, they are altogether unacquainted; the power of discovering the thoughts of others; the power of receiving through the region of the stomach those impressions of external objects which, in ordinary circumstances, are received only through the peculiar organs of external sensation, or that power which, in the technical language of magnetism, is called the transference of the senses; the power of detecting the internal changes which have been produced by disease in their own bodies, or in those of others with whom they may be placed *en rapport*; the power of foretelling the nature of the changes which are to take place in their own maladies, or in those of others; the power of instinctively suggesting the best remedies for the cure of these diseases; together with various other extraordinary powers of a similar kind.

Such are the marvellous virtues attributed by its advocates to animal magnetism. To the former of these two classes of magnetic phenomena the early practitioners of this mysterious art confined their pretensions; but their modern followers extended their claims for the science to the wonderful manifestations included under the second class. In reference to the former, it may be remarked, that the singular physical properties possessed by the magnet suggested to philosophers, as early as the age of Thales (600 B.C.), the probability that it was capable of exerting some special influence upon the human system; and accordingly we find old writers ascribing to it various remarkable, but at the same time very opposite properties, some regarding it as possessed of decidedly injurious qualities, whilst others considered it as endowed with highly salutary medicinal powers. In his *Essay on Internal Diseases*, Hippocrates, the father of medicine, recommended *magnesian*, or loadstone, as a purgative; subsequently, in the days of Galen it was employed in a pulverized state for a similar purpose; and so late as the fifteenth and sixteenth centuries its use in this manner was extended to the treatment of a large class of diseases. Pulverized loadstone was likewise employed as an external application. In Pliny's time it was used outwardly for diseases of the eye, and for the cure of burns and scalds; and so on through the intervening centuries down to Paracelsus, the celebrated German physician and hermetic philosopher, who, in the sixteenth century, employed it largely as a remedy for numerous external injuries. And although Dr. Gilbert, an English physician, proved in the beginning of the

following century that the magnetic properties of the loadstone were entirely destroyed in its pulverized state, the use of the powdered magnet, both as an internal and external remedial agent, continued for a century longer. Nor was the employment of the magnet in its entire state less ancient or general that that which was made of it as a powder. But this belief in its curative efficacy seems to have formed only a part of a great system, whose advocates appear to have recognised magnetism as a general power pervading the whole universe, and establishing connexion between all its various parts. It remained, however, for the celebrated Mesmer to construct out of these abstract notions of a universal magnetic influence, a regular system, which has taken his name, and which claims for animal magnetism, thus reduced to a science, all the wonderful powers to which reference has been made. These claims have been so extensively discussed, and so differently estimated, as to render useless any expression of opinion upon their merits.

Their celebrated author was born at Mersburg, in Suabia, in 1734. After studying medicine for several years in Vienna, he took his degree as Doctor of Medicine, and settled as physician in the Austrian capital. The first public announcement of his discovery of animal magnetism as a remedial agent was given by him in 1775, in a letter to Dr. Unzer, of Altona. In his *Memoire sur la Découverte du Magnétisme Animal*, published in Paris four years later, he gives the following account of it :—"Animal magnetism is a fluid universally diffused; it is the medium of a mutual influence between the heavenly bodies, the earth, and animated bodies; it is continuous, so as to leave no void; its subtilty admits of no comparison; it is capable of receiving, propagating, communicating all the impressions of motion; it is susceptible of flux and reflux. The animal body experiences the effect of this agent; by insinuating itself into the substance of the nerves, it affects them immediately. There are observed, particularly in the human body, properties analogous to those of the magnet; and in it are discerned poles equally different and opposite. The action and the virtues of animal magnetism may be communicated from one body to other bodies, animate and inanimate. This action takes place at a remote distance, without the aid of any intermediate body; it is increased, reflected, by mirrors; communicated, propagated, augmented, by sound; its virtues may be accumulated, concentrated, transported. Although this fluid is universal, all animals are not equally susceptible of it; there are even some, though a very small number, which have properties so opposite, that their very presence destroys all the effects of this fluid on other bodies. Animal magnetism is capable of healing diseases of the nerves immediately, and others mediately. It perfects the action of medicines; it excites and directs salutary *crises* in such a manner, that the physician may render himself master of them. By its means he knows the state of health of each individual, and judges with certainty of the origin, the nature, and the progress of the most complicated diseases; he prevents their increase, and succeeds in healing them without, at any time, exposing his patient to dangerous effects or troublesome consequences, whatever be the age, the temperament, or the sex. In animal magnetism, nature presents a universal method of healing and preserving mankind."

As might be expected, the announcement of this new and marvellous agent excited violent controversy. With few exceptions, all the physicians and men of science in Vienna declared it to be chimerical, and its discoverer a cheat. Thus treated, Mesmer left the Austrian capital, and after travelling for some time through various parts of Germany and Switzerland, and performing some wonderful cures, he went to Paris in 1778. On reaching this new and favourable theatre for his exploits, his first care was to procure public apartments for the treatment of his patients. Hither flocked peer and peasant in such numbers, that his rooms were insufficient for the crowds who wished to avail themselves of his universal remedy. To enter into all the particulars of his career in Paris, however, would not be in keeping with the object of this short paper. As in Vienna, so in the French capital, the faculty, with a few zealous exceptions, were unanimous in their opposition. But, supported by the influence of many patients of rank, he continued to carry out his new theory with much *éclat* and success. He propounded the principles of his system to large and applauding audiences, and illustrated their application to the cure of diseases, to the complete satisfaction of all who heard him. He applied to the government and obtained the patronage of the queen, through whose influence he succeeded in his application for a chateau and its lands, with a large yearly pension, to enable him to carry out his principles on a more extensive scale. The grant, however, was coupled with the condition that a commission should be formed by the government to examine into and report upon his proceedings. With this Mesmer refused to comply, and soon after left Paris and repaired to Spa. Thither he was followed by many of his wealthiest and most influential patients, who, on condition that he would communicate to them his doctrine and practice, bound themselves to pay him the enormous sum of ten thousand *louis d'or*. On receiving this sum, Mesmer returned to Paris, and recommenced his public practice as before; but, quarrelling with the disciples of his system, from whom he had received the sum just mentioned, he quitted France, and retired to his native place, where he died in the early part of 1815. Such is the history of the discoverer of animal magnetism, which, since his time, has more generally been called by his name.

The mode of bringing the magnetised under the influence of the magnetic fluid was peculiar. M. Bailly, who, together with Lavoisier and Benjamin Franklin, was appointed by the French government to examine into the principles of the system, gives a detailed account of the manner in which it was applied. In the middle of the room in which the patients were collected was placed a large circular vessel, made of oak, about a foot or a foot and a half in height; the interior of this vessel was filled with pounded glass, iron filings, and bottles containing magnetised water arranged symmetrically; the cover of the vessel was pierced with numerous holes, in which were placed polished iron rods of various lengths, and capable of being moved; this was called the *baquet*, or magnetic tub. Round this the patients were placed in rows, each holding one of the rods of iron, the end of which he applied to the part of his body which was the supposed seat of the disease. A cord passed round their bodies united the patients to one another, and sometimes they formed a second chain by taking hold of each other's thumbs. A piano-forte charged with magnetic fluid was placed in the corner of the room, and various airs were played upon it to put the patients into a state of quiet, and dispose them to receive the magnetic action. At some distance stood the operator, who held in his hand a polished and pointed rod of iron, from ten to twelve inches long, which served to concentrate the fluid which issued from himself, and thus render it more powerful in its action upon the patients. During this process, which consisted of various passes by the finger and rod of the magnetiser, by the application of his hands, and the pressure of his fingers on the hypochondria and on the regions of the abdomen, the patients were variously affected. Some were calm, and experienced but little effect; others coughed, spat, felt pains, local or general, and had profuse sweatings; whilst others again were thrown into violent convulsions. These convulsions were extraordinary, from their number, their duration, and their violence. All, however, were completely under the power of the operator, whose voice, gesture, or look, could immediately rouse them from whatever state they might be in.

Though animal magnetism excited very great and general attention on the continent, it never thoroughly took root in England. Latterly, however, a greater amount of attention has been directed to the subject, which has been investigated by several eminent physiologists. The well known case of Miss Martineau has been the most remarkable in connexion with its history for several years. Since and before this alleged demonstration of the curative power of magnetic agency, many claims have been put forward in its favour. But whilst many of the facts recorded admit of little doubt, they have been so remarkably misrepresented through the feelings of those who have observed and narrated them, that men of science, disgusted with the imposture of some and the credulity of others, have generally shunned its investigation, and turned a deaf ear to what they consider the pretensions of its professors. It must be admitted, however, that the advocates of these "pretensions" are neither undistinguished nor few.



PEGASUS HARNESSED TO THE COACH.



PEGASUS BEING STARVED INTO SUBJECTION.



PEGASUS YOKED WITH AN OX.



PEGASUS FLYING AWAY TO HEAVEN.

NUREMBERG, THE SCENE OF MANY ARTS.

Those who would wish to visit a city, not a little remarkable in itself, and also associated with the development and growth of many arts, should wend their way towards Nuremberg, in Bavaria. Surmounted by feudal walls and turrets, inclosed by a huge ditch lined throughout with masonry, its arched gates are flanked by massive cylindrical watch-towers, which, though no longer of use as fortifications, are highly picturesque, and serve to complete the coronet of antique towers which encircle the city as seen at a distance.

The stranger, arrived within its walls, might easily fancy himself carried back to a distant century. The physiognomy of Nuremberg is completely Gothic; in every part it has retained the aspect of the middle ages. "No two houses," says Mrs. Jameson, "resemble each other; yet differing in form, in colour, in height, in ornament, we have a family likeness; and with their peaked and carved gables, and projecting central balconies and painted fronts, stand up in a row, like so many tall, gaunt, stately old maids, with the toques and stomachers of the last century. The buildings are so ancient, the fashions of society so antiquated, the people so penetrated with veneration for themselves and their city, that in the few days I spent there, I began to feel quite old too—my mind was *wrinkled up*, as it were, with a reverence for the past. I wondered that people condescended to talk of any event more recent than the thirty years' war, and the defence of Gustavus Adolphus."

The churches and other public buildings of Nuremberg are, indeed, singularly perfect, escaping unharmed the assaults of violence in various forms, and among them, of war and siege; while its private edifices, including the palace-like mansions of its patrician citizens and merchant nobles, having been built of stone, are equally well preserved. The most elevated position within the town is occupied by the Reichsveste, or imperial castle. The shrine of St. Sebald, which stands in the centre of a fine Gothic edifice, now devoted to the Lutheran service, is the masterpiece of the celebrated artist, Peter Vischer, who, with his five sons, was employed on it for thirteen years. It is a miniature Gothic chapel, the workmanship of which is most elaborate, and is entirely of bronze, consisting of a rich fretwork canopy supported on pillars. The figures of the twelve apostles occupy the niches around the shrine, and are truly first-rate works of art; figures of the fathers of the church appear of smaller size, and various fanciful representations, distributed among flowers and foliage, are scattered over the other parts. In a niche below, at one end, is an admirable statue of Vischer himself, in the dress of a mason; and at the opposite end is a figure of St. Sebald.

Not to dwell on various matters of interest connected with this remarkable city, we must glance for a moment at the arts which have been cultivated, and are still practised there. The earliest playing cards were probably painted by means of a stencil, that is, a piece of pasteboard, or plate of thin metal, pierced with apertures, by which a figure is formed on paper, or other substance placed beneath it, when fluid colour is smeared over its surface with a brush. A rude application of wood engraving to form the outline, which the stencilling process filled up with colour, appears to have been subsequently used; it is certain, however, that the Germans were the great cardmakers of the period; and that the name by which a wood engraver is still called in Germany, *Form-schneider*, meaning figure-cutter, occurs in the town books of Nuremberg as early as 1441. Here, too, on the first discovery of printing, Hans Foltz, a literary barber and meister-singer, set up a printing press in his own house, and thus stands identified with the origin of that stupendous power which "has reformed religion, and new-modelled philosophy; has infused a new spirit into laws, and overrules governments with a paramount authority; makes the communication of mind with mind easy and instantaneous beyond example; confers a perpetuity unknown before upon institutions and discoveries, and gives those wings to science which it has taken from time."

Albert Durer, the son of a goldsmith, was born at Nuremberg, in 1471, and in early life made a great proficiency in painting and engraving. He was also skilled in anatomy, geometry, and architecture, on which subjects he composed some treatises which are extant. Many specimens of his skill as an engraver are to be found in the cabinets of collectors. The style of this artist makes no approach to classical taste, and he seems to have had no conception of ideal beauty; but he possessed an inexhaustible fertility of invention, and represented nature with an air of fidelity, strength, and majesty. He died and was interred in his native city.

In remote periods metals were beaten with a hammer to thin plates or leaves, which were afterwards divided into small slips by means of a pair of scissors, or some other instrument, and then these slips were rounded by a hammer and file so as to form threads or wire. So long as the work was thus performed, the artists at Nuremberg were called wire-*smiths;* but Rudolph, a native of that city, is said to have constructed a famous machine for drawing wire, after which they were called wire-*drawers*, or wire-*millers*, and both these appellations occur in the history of Nuremberg as early as 1360.

The first portable fire-arms were discharged by means of a match, which, in the course of time, was fastened to a cock, for the greater security of the hand while shooting. Afterwards a fire-stone was screwed into the cock, and a steel plate or small steel, which could be cocked or wound up by a particular kind of key, was applied to the barrel. The invention of the lock was, therefore, a manifest improvement in these weapons; it is traced to Nuremberg, in 1517, and was, most probably, a very rude affair compared with the locks which have been subsequently contrived. Cannon are said to have been cast here so early as 1356. This city was, in fact, the continental Birmingham for many ages, during a portion of which period it is said to have had 70,000 inhabitants.

"But," says Mrs. Jameson, "what is most striking and curious in this old city is to see it stationary, while time and change are working such miracles and transformations everywhere else. The house where Martin Behaim, four centuries ago, invented the sphere, and drew the first geographical chart, is still the house of a mapseller. In the house where cards were first manufactured, cards are now sold. In the very shops where clocks and watches were first seen, you may still buy clocks and watches. The same families have inhabited the same mansions from one generation to another, for four or five centuries. The great manufactories of those toys called Dutch toys, are at Nuremberg. The enormous scale on which this commerce is conducted, the hundreds of wagon loads and ship loads of these trifles and gimcracks which find their way to every part of the known world, must interest a thinking mind. A Nuremberger complained to me most seriously of the falling-off in the trade of *pill-boxes!* He said that since the fashionable people of London and Paris had taken to paper pill-boxes, the millions of wooden or chip-boxes which used to be annually sent from Nuremberg to all parts of Europe were no longer required; and he computed the falling off of the profits at many thousand florins."

LITERARY FORGERIES.

One of the most remarkable of this class of deceptions which occurred during the last century, was that perpetrated by the *soi-disant* George Psalmanazar. His career forms one of not the least interesting curiosities in the history of literature. He was a Frenchman by birth, and had been educated in a college of Jesuits, which he left to become tutor to the son of a nobleman. He soon fell into bad habits, however, which obliged him to leave his situation and turn his attention to something else. Having procured a certificate that he was of Irish descent, and that he had left the country for the sake of the Roman Catholic faith, he prepared to make a pilgrimage to Rome. But being unable to purchase the necessary garb, and observing one in a chapel, dedicated to a miraculous saint, he contrived to appropriate the garment. Thus disguised, he begged his way in fluent Latin, with such success that on the very first day of his pilgrimage he had procured a considerable sum of money. In this manner he travelled through a great part of the continent. During his early residence among the Jesuits, he had heard them speak much of China and Japan, and whilst in Germany he conceived the design of personating an islander of Formosa; what

he wanted in knowledge to carry out his scheme, he supplied by a pregnant invention. His first step in the imposture was to form a new character and language on grammatical principles, which, like other Oriental languages, he wrote from right to left. He then planned a new religion, and a division of the year into twenty months, with other novelties, to give colour to his pretensions. To give the greater consistency to his imposture, he worshipped the rising and setting sun; and ate raw flesh, a custom which still better assisted his deception than even the one just mentioned. In a garrison at Sluys he found a Scotch regiment in the Dutch pay, and was introduced by the colonel to the chaplain, who, with the view of recommending himself to the Bishop of London, resolved to carry him over to England, and effect his conversion. The bishop received the impostor with the most credulous humanity, and Psalmanazar formed a large circle of friends who extolled him as a wonder. Innes, the chaplain, soon after received a living from the shortsighted bishop, and afterwards gave himself no further trouble about the spiritual welfare of the Formosan. The pretensions of the latter were not universally admitted in England; there were many doubters, amongst the most learned of whom may be mentioned, Drs. Halley, Mead, and Woodward. The impostor, however, was employed by his patrons to translate the Church Catechism into the Formosan language, which was examined by the learned, approved, and laid by as a valuable manuscript! His next production was "An Historical and Geographical Description of Formosa, with Accounts of the Religion, Customs, and Manners of the Inhabitants, by George Psalmanazar, a native of the said isle," 1704; with numerous plates of their dress, religious ceremonies, their tabernacles and altars to the sun, moon, and the ten stars, their architecture, the governor's castle, a temple, a city house, a country house, and the Formosan alphabet. In his conferences before the Royal Society with a Jesuit just returned from China, the Jesuit had strong suspicions that our hero was an impostor. The priest held to the conviction, but could not satisfactorily communicate it to others; and the unblushing Psalmanazar, after politely asking pardon for the expression, complained that the Jesuit "*mentitur impudentissime*" (lies most impudently).

The zealous believers in his *genuineness* sent him to Oxford to study what he liked, whilst they learnedly contended with his opponents in London upon the merits of his catechism and history. Dr. Mead insisted that he was a Dutchman or a German; some thought him a Jesuit in disguise; the catholics declared him to be a tool of the protestants bribed to expose their church; whilst the presbyterians discovered that he was paid to explode their doctrine and cut up episcopacy. *Sic stulti omnes.* The bubble at length burst; a minute examination of the "History" led to a complete *exposé* of the whole delusion, and its author composed his autobiography as the penance of contrition, not to be published till after his death, when all human motives for further imposture would have ceased. The book is tedious, but curious, as showing the progress of the mind in an ingenious and sustained deception. Psalmanazar lived several years after the discovery of his trick, and was concerned in several works of credit, particularly the well known Universal History. He died some time in the year 1763.

MANUFACTURE OF MEAT BISCUIT.

This Meat Biscuit, which attracted much attention at the Exhibition, and to the inventor of which (Mr. Gail Borden, of Texas, U.S.) a Council Medal was awarded, is made as follows:—Beef, mutton, or other flesh, in good condition, is boiled in a quantity of water until all its nutritious or alimentary properties are given out in the decoction; the fat and oily matter which rises to the surface is removed by skimming, after which the decoction is strained off and allowed to settle. The clear liquor is next poured off and evaporated in a vacuum pan or other suitable vessel, to the consistence of thick treacle. With this soft extract of meat, a sufficient quantity of either flour, meal, or powdered biscuit is added, as will form a dough of sufficient stiffness to be rolled into a convenient form and cut into biscuits, which are then carefully baked; the heat of the oven used for this purpose being about that of a common oven after a batch of bread has been baked in it.

These biscuits may be kept in that form, or be ground into meal for the greater convenience of cooking; in which state it should be kept in air-tight bags of gutta percha, varnished cloth, or other material capable of keeping out the air, water, and moisture.

To prepare soup, the meal or ground biscuit is first stirred with a sufficient quantity of cold water to form a thin batter, in which it may stand from five to twenty minutes, when boiling water is added, and the whole boiled from ten to thirty minutes, according to the firmness of the biscuit meal used, and until it is dissolved in the water. Salt, pepper, or any other condiment may be added to suit the palate. Also cooked vegetables of any kind. One ounce of biscuit will make a pint of soup.

In the manufacture of the biscuit, about two parts of meat extract are mixed with three parts of flour: the dough loses about 20 per cent. in the baking.

The inventor states that the meat biscuit is not liable to the attacks of the weevil or other insects.

In some of our colonial possessions, as Australia, &c., these biscuits may be made at a very low price, as, in addition to abundance of animal food, the finest wheat in the world is there grown.

The advantages attendant on the use of the meat biscuit are so self-obvious as scarcely to require pointing out. For all enterprises whether of war or peace, of commerce or science, the meat-biscuit is eminently adapted; furnishing ample nourishment, so small in bulk, and so light in weight, as to admit of easy transport. Experience has shown that although human life may be sustained in a diet of a simple kind, the highest degree of corporeal and mental strength can be maintained only by the use of both vegetable and animal food, especially when labour, fatigue, and privation are to be undergone. In the meat-biscuit this combination is obtained in the most satisfactory condition.

THE LADIES' DEPARTMENT.

CROCHET POINT EDGING,

SUITABLE FOR TRIMMING INFANTS' ROBES, &c.

Materials.—Crochet Cotton, No. 24, Crochet Hook, No. 24.

Make a chain of the required length, reckoning the number of stitches by seventeens, with 3 over in the length. Do one row of s.c.

2nd row: × 1 d.c., 1 ch., miss 1, × throughout the length, end with 1 d.c.—3rd: S.c.

4th: × 3 s.c. (taking up both sides of the chain), 7 ch., miss 3, 3 s.c. as before, 7 ch., miss 3, 2 s.c. as before, 7 ch. miss 3, × repeat as often as required; end with 3 s.c.

5th: × 3 slip on 3 s.c., 5 s.c. under the chain of 7, make a picot thus: 2 ch., miss 1, slip on next, slip on last s.c., 5 s.c. under chain; 3 slip on 3 s.c., 3 s.c. under loop, make a picot, 7 more s.c. under loop, miss the 2 s.c. of last row, 5 s.c. under next loop, turn the work on the wrong side, 7 ch., s.c. under the second and third from the picot of the loop just completed; turn on the right side, 5 s.c., under the chain just made, 1 picot, 5 more s.c. under the same chain; now finish the loop already begun with 2 s.c. under the chain, 1 picot, 3 more s.c. under the chain, ×.

Repeat throughout the length, ending with 3 slip on 3 s.c.

CROCHET EDGING.

Materials.—For children's drawers, and other fine articles, Crochet Cotton, No. 24, Crochet Hook, No. 22. For petticoats, Crochet Cotton, No. 16, Crochet Hook, No. 18.

Make a chain of the length required, the number of stitches in it being divisible by 7, with 3 chain over, if a straight piece. If intended to be formed into a round, it is better to do so at once.

2nd row: S.c. in every chain.

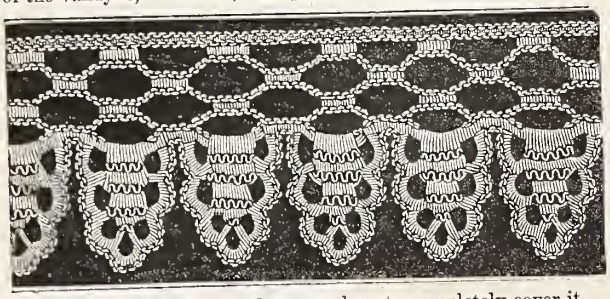
3rd: × 3 s.c., 7 ch., miss 4, × repeat.

4th, 5th, and 6th: 3 s.c. on 3 centre of the 7 ch., × 7 ch., 3 s.c. on 3 centre of the next loop, × repeat.

7th: × 3 s.c. on 3 s.c., 8 d.c. under chain of 7, 1 chain, *turn*, 7 s.c. on the 8, inserting the hook in both sides of the chain; *turn*, 1 ch., 6 s.c. on 7; *turn*, 1 ch., 5 s.c. on 6; *turn*, 1 ch., 4 s.c. on 5; *turn*, 1 ch., 3 s.c. on 4; *turn*, 1 ch., 2 s.c. on 3; *turn*, 1 ch., 1 s.c, on 2. Turn on the right side, and do s.c. down from the point to the base of the vandyke, × repeat.

Observe that in working this vandyke all the stitches are taken under both sides of the chain.

8th: S.c. on centre of 3 s.c., × 5 ch., s.c. at the side of the vandyke, under the 1 chain after 6 s.c., 5 c.h., s.c. under 1 ch. after 3 s.c., 5 ch., s.c. under the point, 5 ch., s.c. in the same place, * 5 ch., s.c. to correspond with the loop on the other side of the vandyke, * 3 times, × repeat.



9th: Do sufficient s.c. under every loop to completely cover it, and connect together the first of one vandyke with the last of the one preceding it.

BORDER FOR A HANDKERCHIEF,

IN CAMBRIC APPLIQUE, OR IRISH POINT.

MATERIALS.—A square of cambric, and one of the same size of Brussels net; fine sewing and embroidery cotton. If the handkerchief is to be worked in Irish point the net will not be required. The cambric should be very fine, but not of the most transparent texture.

In our instructions for embroidery we have given an explanation of the mode of working appliqué muslin, and to them we refer the reader for the present pattern. The section given is the full size, the whole border may therefore be drawn from it, and marked on the cambric. All the white parts are in cambric, the veinings of the leaves and the petals of the roses being distinguished by tracing them with the sewing cotton, and then sewing them over. The stems and points of the sepals are done in the same way, the former being made a little thicker at the ends.



In muslin appliqué the groundwork is net; in Irish point it is formed of bars covered with button-hole stitch, connecting all the various parts; and in both styles of work two parallel rows of sewing, over a thread about the eighth of an inch apart, divide the border from the centre of the handkerchief. The outer edge of the work is finished by a row of very fine button-hole stitch, and a pearl edging.

If worked in appliqué, those parts of the net which are left in the edge of the border, within the scrolls, should be worked in fancy stitches; and the same parts may be filled with English lace, or other point stitches, for Irish point. The heart of every rose should be open, having a single spot of English lace in it, and care should be taken to follow nature as closely as possible in the formation of the leaves and buds.

Five perfect patterns on each side, besides the corners, will be a very good sized handkerchief.

DIRECTIONS FOR ENLARGING PATTERNS.

As the pages of our magazine will not admit of all the needlework patterns being given of the full size, and it is requisite that the worker should enlarge them for herself, an explanation of the mode of doing this with accuracy mry be acceptable. A very slight knowledge of drawing will enable any one to do this.

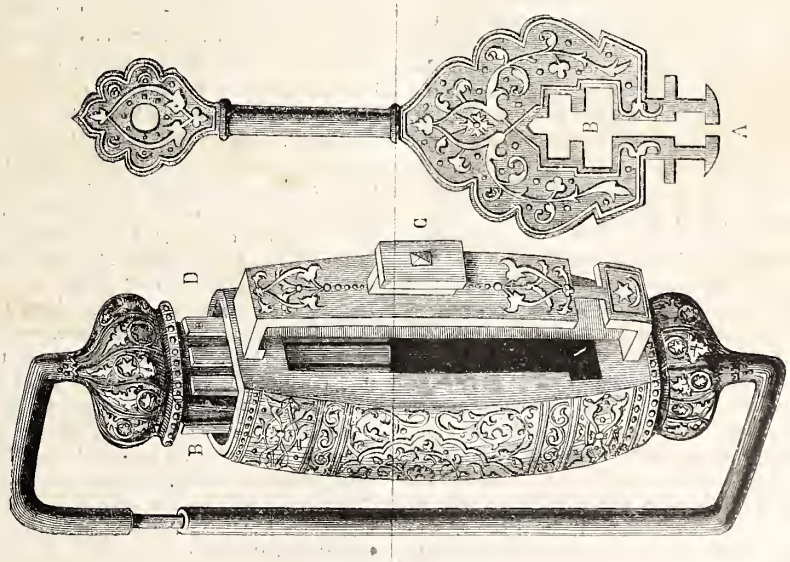
Trace the patterns from the engraving on thin writing paper, and then rule lines with a pencil, dividing it into sections, both in the length and width. Should the design be a very elaborate one, the lines should be proportionably numerous: the pattern may have eight or more lines each way, but if it is simple fou will probably be sufficient. Then mark or cut out the shape o the article in white paper, the *full size*, allowing for turnings in &c., and within the shape draw the same number of lines, e equal distances, as are in the smaller pattern. There will the be little difficulty in sketching the design, with a pencil, the fu size, as with these lines to guide you, you will easily manag that each leaf and scroll shall come in its proper place, if yo take care that it is in the same position on the large pattern tha it holds in the corresponding section of the engraving.

By carefully following this plan, a pattern may be increas to any size desired; the shape of the full-sized article shoul however, be marked with great accuracy, particularly in gilet collars, and other similar things, which are intended to fit well,

DOMESTIC ART AMONGST THE TURKS AND ARABS.



COFFEE POT OF THE SULTANA VALIDA.



CURIOUS ARABIAN PADLOCK.

Arabic art had no existence before the time of Mahomet, and it was only when the followers of the prophet found themselves in contact with the Sassanides and the Greeks that it took its rise. The Arab chiefs borrowed from the natives of the civilised countries whose neighbours or masters thay had become. This is acknowledged by the oldest Arab authors. One of them, Eben Khaldoron, thus expresses himself upon the subject: "We always see that nomade tribes, amongst whom civilisation has not yet commenced,

are obliged to have recourse to other countries in search of persons skilled in the arts." But, as might be expected, amongst a people so imaginative and intelligent, it was not long before native artists began to rise into notice, and a style soon sprung up which has ever since been known as *Arabic art*, or Arabesque, properly so called, and which prevailed for a long time, not in the East only, but in some countries of Western Europe. It is remarkable for its richness in curious combinations, based generally upon geometric lines arranged in a very complicated but ingenious manner; and it displays itself upon even the smallest domestic utensils, upon their furniture, bindings of books, every sort of embroidery, and in the decorations of almost all private houses.

The padlock and key, of which we give engravings, may serve to furnish a good idea of the taste in ornament, as well as the mechanical ingenuity, of the Arabs. The key is held in a horizontal position, and is introduced into the lock at the aperture A; its point, marked A also, entering first. A bar of iron placed behind the outer plate enters the wards of the key as far as B. The key is then raised so as to make it pass the elevated parts indicated by C. A pressure is thus exerted upon the springs in the interior, the ends of which are visible at B and D, and the upper part is allowed to rise, and the curved bolt is withdrawn from its sheath. A lock of precisely similar construction to this one is preserved in the Musée des Thermes at Paris. It is undoubtedly of Arabian workmanship, but is deprived of its ornaments, the place of which is supplied by bands of copper inlaid with iron.

The Turks, as well as the Arabs, drew the first ideas of art from the Byzantines, upon whom the Asiatic style had already exercised considerable influence, as is evidenced in all their works of an early period. Since the seventeenth century Turkish art has undergone very considerable modifications, which may, perhaps, be attributed in some measure to their wars and frequent intercommunication with Germany and Poland, but in a still greater degree to Sultan Othman, who sent artists to study in the west, but at one of the worst periods that could have been chosen. The Turkish taste was thus completely bastardized by the introduction of the rockwork and devices in shell, which appeared on nearly all ornamental works of European manufacture during the eighteenth century.

The other engraving represents a domestic utensil, and by comparing it with the lock we may form some idea of the slight differences of style which exist between the works of the Turks and Arabs. It is a tea-kettle or coffee-pot, and was found in the tomb of the Sultana Valida, mother of Mahomet IV., who reigned in the middle of the seventeenth century. It is made of copper, with golden filagree work around the sides, surmounted by grains of carved coral. The same plan prevails throughout, and all the ornamental parts are executed with the utmost delicacy.

The discovery of this vessel in the tomb reminds us of the custom which prevailed among the ancients of placing beside the dead whatever had been most useful or most loved in life. It was evidently employed in heating a liquor of some sort, as the most prominent of the corals bear traces of the action of fire.

LITHOGRAPHY.

The process depends upon the facility with which some kinds of stone absorb either grease or water, and on the natural antipathy which grease and water have for each other. An even surface having been given to the stone, a drawing is made upon it with a greasy chalk. The stone is then wet, and the printer passes over it a roller, covered with printing ink, which adheres to those parts only which are drawn upon with the chalk; a damp paper is then pressed upon it, and receives an impression of the drawing. Lithography was accidentally discovered by Aloïs Senefelder, the son of a performer at the Theatre Royal of Munich. He was a student of law at the University of Ingolstadt, and after his father's death tried a theatrical life, but without success. He then became an author, but being too poor to publish his work, tried various methods of writing on copper, in order that he might then print himself, and soon found that a composition of soap, wax, and lamp-black, formed an excellent material for writing, capable, when dry, of resisting aquafortis. To obtain facility in writing backwards, as copper was too expensive, he procured some pieces of calcareous stone, which, when polished, served him to practise upon. His mother having one day desired him to take an account of some linen she was sending to be washed, he wrote it out on a piece of this stone with his composition of soap and wax. It afterwards occurred to him, that by corroding the surface with acid, the letters would stand out in relief, and admit of impressions being taken from them. He tried the experiment, and succeeded, and soon found that it was not absolutely necessary to lower the surface of the stone, but that simply wetting it was sufficient to prevent the printing ink from adhering to any parts except those marked with the composition. Such was the invention of lithography, and Senefelder continued to pay unremitting attention to the improvement of the art. In 1796 pieces of music were printed, and it was perhaps the first time that lithography became of real use. The difficulty of writing backwards brought about the invention of the transfer paper. In 1799, Senefelder took out a patent at Munich, and soon after entered into partnership with a Mr. Andre, of Offenbach, who proposed to establish presses and take out patents in London, Paris, and Vienna. He came to London in 1801, with a brother of Mr. Offenbach, and communicated the new art, then called poly-autography, to many of our best English artists, who tried it; but the continual failures through want of skill in the printing, and the difference between German and English materials, caused it to be abandoned. Having separated from Mr. Andre, Senefelder went to Vienna, where he tried to apply lithography to the printing of cottons, but apparently without success, and he returned to Munich in 1806; in which year the professor of drawing at the public school of Munich, Mr. Mitterer, succeeded in multiplying copies of his drawings for his pupils by lithography. He is also said to have invented the composition for chalk as now made. In 1809, we find Senefelder inspector of the royal lithographic establishment at Munich, and engaged in printing a map of Bavaria. He soon after invented the stone paper, which, however, did not succeed; it was exhibited in 1823 at London, by a partner of Senefelder, but its liability to crack by being wet, and the pressure of the press, rendered it useless. Little was done in England after 1806, till its revival in 1817, since which time it has been gradually improving, till lately it has acquired still greater powers by the means of employing a second stone, by which is obtained a perfect imitation of drawings made on tinted paper, having the lights laid on with white.

WHIMSICAL IDEAS ABOUT HOMER AND THE TROJAN WAR.

Strange as were some of the notions held by ancient grammarians on points of philological dispute in the poems of "the blind old man of Scio's rocky isle," their criticisms have been far surpassed in absurdity by some of their modern followers.

In 1658, a book, called *Homerus Hebraizon*, was published by Zachary Bogan, an English philologist, in which he attempted to draw from the "Iliad" and "Odessey" convincing evidence of the truth of the Mosaic histories. Two anonymous critics "followed on the same side," endeavouring to establish his theory in two works, called *A Discourse, in the form of a comparison between the lives of Moses and Homer;* and *Homer the Historian of the Hebrew people.* Next followed the celebrated work of Creusus, *Homeros Hebraios*, published at Dordrecht, in 1704. He plainly asserted, and proved to his own satisfaction, that the "Odyssey" was neither more nor less than a history of the Israelites under the patriarchs.

Bryant, an English antiquary, who died in 1804, had maintained in one of his early works, called *An Analysis of Ancient Mythology*, that the histories of the patriarchs, as given in the Old Testament, had been the sources whence most of the old pagan mythology had been drawn; and in 1796, published his *Dissertation on the Trojan War*, as described by Homer, in which he affirmed that this expedition had never taken place, and that the pretended city of Phrygia never had an existence. He maintained that Homer had been born at Thebes, one of the two capitals of Egypt, and pretended that he had been a superstitious poet, who, after having grown old on the banks of the Nile, had

stolen the poems of Phantasia from the temple of Isis, and changed the scene to Troy, disguising under Grecian names the gods and heroes who had figured during the monarchy of the Pharaohs. According to this hypothesis, then, Homer and his works belonged to the east; but Vincent Coco, a Neapolitan, who died in 1823, imagined that the great poet's songs, far from being of Greek origin, as the general belief has so long been, originated altogether in Italy.

Grave, a Flemish writer, who died about the beginning of the present century, was equally anxious to gain the credit of the poems for his own country; maintaining that the events of the Trojan war had all occurred in the neighbourhood of Amsterdam. He seriously developed his theory in three octavo volumes, which he published in 1803. In these curiosities he endeavoured to prove that an ancient republic had existed on the northern banks of the Rhine, where Ulysses and all the other celebrities of the Trojan war, and subsequently those of the "Odyssey," had performed what has been attributed to them by Homer and Hesiod, both of whom he makes of Belgian origin. He gives to this people the name of *Elysians*, "who, according to other accounts, were called *Atlantes*, *Hyperboreans*, and *Cimmerians*," and affirms that, twelve or thirteen centuries before the Christian era, they had reached a most advanced state of civilisation, and cultivated philosophy, and the arts and sciences, to a very remarkable extent. His vagaries were adopted and advocated by a Dr. Davies, in a work called *Celtic Researches*, published shortly afterwards.

ARABESQUES.

The graceful, but heterogeneous, species of ornament thus designated, derived this modern name from the Spanish Arabs, those brilliant children of the East, who were so far in advance of all their continental neighbours, both in literature and art, and whose dominion forms so stirring and romantic an episode in European history. But this style of decoration existed long before ever the turbaned warriors of the Prophet set foot in Spain. Specimens of it are met with in numerous remains of Grecian and Roman art at the present day, and there is abundant proof that its origin is still more remote. Virtuvius, with much probability, traces its invention to the earliest *praticiens* of nearly all science and art, the Egyptians, and finds the first developments of the idea in the hieroglyphical monuments on the banks of the Nile. At the fall of the Roman empire arabesque decorations shared in the almost universal neglect of the fine arts, and are hardly to be met with in any of the Christian buildings erected about that retrograde period. But when the enthusiastic and victorious followers of Mahomet came forth from their native deserts to conquer and proselytize the world, they opened up even the current of suspended civilisation, and cultivated the various branches of science and art with a vigour which the rude asceticism of their Christian contemporaries could neither feel nor practise. The dogmas of their religion, however, strictly forbade the representation of animals of any kind, in order to avoid the very semblance of idolatry; the adoption, therefore, of this species of decoration for their paintings and sculptures at once satisfied the restrictions of the Koran, and provided a field for the practice of the fine arts. Without violating any injunction of their religion, they could here embody the creations of their brilliant eastern imaginations in every variety of graceful and fantastic combinations of fruit and flowers. With these they painted and sculptured the surface of their buildings. The grand mosque of Cordova, and the Alhambra of Granada, contain many specimens of these Arabic decorations, which even yet, after the lapse of centuries, have lost but little of their original exquisite brilliancy of colour or clearness of outline. In these two qualities they far surpass all other specimens of this branch of art which were executed by any of the other European nations who flourished at the same time. The arabesque compositions of Christian artists, however, in addition to vegetable forms, were made to include animals of every kind, whether real or imaginary; hence, in time, all fanciful combinations of natural objects, of whatever kind, which were employed for the continuous decoration of a flat surface came to bear this designation. The name, indeed, has now become so general as to be applied to the strange enrichments found on the walls of Herculaneum and Pompeii, as well as to others of the same and earlier date, which were formed and forgotten long before the sons of Ishmael had learned to draw. The most celebrated arabesques of modern times are those with which the prince of painters ornamented the arcaded gallery of the Vatican, which bears his name. Though only one of the three sides of this gallery, or rather galleries, for it is in three lengths, exhibits the designs of the great artist himself, they are always distinguished as *Le Logge di Raffaelle*.

MONT BLANC.

"Above me are the Alps,
The palaces of nature, whose vast walls
Have pinnacled in clouds their snowy scalps,
And enthroned eternity in icy halls
Of cold sublimity, where forms and falls
The Avalanche—the thunderbolt of snow!
All that expands the spirit, yet appals,
Gather round these summits, as to show
How earth may pierce to heaven, yet leave vain man below."

Byron.

The continent of Europe is characterised by two great mountain masses, from one or other of which all the other chains diverge. The first of these is the mountain mass of *St. Gothard*, or the Alps, in Switzerland, and the second is the *Wolchonskywald*, in Russia. To the former of these, the reader need hardly be told, peculiarly belongs all that awful and sublime grandeur which gives to mountain scenery its charms. It is to this dorsal ridge of the continent that Switzerland owes all the sublimity and diversified beauty of scenery which distinguishes it above every other country on the globe. As the first view of them breaks upon the enraptured traveller from the outlying hills of the Jura, his sensations can find no adequate expression in language. Nature towers around and beyond him in her most sublime forms, teaching him, by contrast, his own littleness and that of his most colossal works. True in fact as beautiful in poetry are Rogers' lines:—

"Who first beholds those everlasting clouds—
Those mighty hills, so shadowy, so sublime,
As rather to belong to heaven than earth—
But instantly receives into his soul
A sense, a feeling, that he loses not—
A something that informs him 'tis an hour
Whence he may date henceforward and for ever."

But high above the loftiest of these snowy citadels of nature rises the glorious Mont Blanc, towering aloft above all the mountains of Europe.

Mont Blanc is monarch of the mountains;
They crown'd him long ago
On a throne of rocks, in a robe of clouds,
With a diadem of snow.

To reach the summit of this highest of the Alpine range has always been an object of desire with adventurous travellers. Some, only, of the many attempts which have been made have succeeded. The first of these was made in the year 1762, by Pierre Simon, of Chamouni, who endeavoured to accomplish it by the Glacier du Boissons, and again from the French side, but failed in both. Another equally unsuccessful attempt was made by some villagers in 1773, and again in 1783, by M. Bourrit, of Geneva. In 1785, M. de Saussure, M. Bourrit, and the son of the latter, with fifteen guides, left Bionassy in the beginning of September, and ascended the glacier of the same name. On the following day, however, their progress was barred by the snow on the summit of the Aiguille du Goute, beyond which they did not ascend. In the next year the attempt was again made by six Chamouni guides, but without success. On their descent, however, one of the number, Jacques Balma, strayed from the party, and lost his way amongst the icy ills of the Glacier. After remaining all night in the snow, he discovered, next morning, a route by which the summit could be reached, and then returned to Chamouni with his secret. In the following year he communicated his discovery to Dr. Pachard, a native of Chamouni, and with him started to prove the practicability of his newly-found route.

They succeeded in gaining the summit, after surmounting many difficulties, and returned to the village on the third evening after their departure. During the summer of 1787, M. Saussure successfully renewed his attempt under the guidance of Balma, and accompanied by nineteen other attendants. Since then the ascent has been frequently made by travellers from all parts of Europe. These dangerous enterprises, however, have not been unattended by frequent catastrophes. The terrible avalanche, or, as Byron has it,

> "The glacier's cold and restless mass
> Moves onward day by day,"

and has often swept before it into the fearful gulphs which everywhere abound, the too rash or the inexperienced climber. In August, 1820, Dr. Hamel, a Muscovite, with three gentlemen and twelve guides ascended to the grand plateau. In climbing from it up the side of the mountain, an avalanche swept away the whole party. Only one of the guides was saved, and he almost by a miracle. He was thrown over the precipice, but was stopped in his downward course by a projecting crag, which flung him back into a cavern of snow, where he was afterwards found only just in time to save his life. Similar calamities have occurred not infrequently since.

The last and not the least interesting exploration which has been made of this

> "World of wonders, where creation seems
> No more the works of nature, but her dreams,"

was made in the summer of last year, by our own well-known countryman, Mr. Albert Smith, in company with some other English gentlemen and a numerous corps of guides. With the stirring incidents attending this ascent, the readers of *Blackwood* have since been made acquainted by its versatile achiever, in a paper full of graphic descriptions and peculiar touches of great interest. More recently still "the dangers of the way" have been made familiar to the visitors of the Egyptian Hall, by graphic illustrations from the pencil of Mr. Beverly, who took part in the expedition, and by the humourous descriptions of Mr. Smith himself—a combination which gives to his audience very truthful and vivid ideas of the sublime grandeurs of Mont Blanc. In the paper just mentioned the author gives the following account of the view from its summit:—

"The morning was most lovely; there was not even a wreath of mist coming up from the valley. One of our guides had been up nine times, and he said he had never seen such weather. But with this extreme clearness of the atmosphere there was a filmy look about the peaks, merging into a perfect haze of distance in the valleys. All the great points in the neighbourhood of Chamouni—the Buet, the Aiguille Verte, the Col du Bonhomme, and even the Bernese Alps—were standing forth clear enough; but the other second class mountains were mere ridges. It was some time before I could find out the Brevent at all, and many of the Aiguilles were sunk and merged into the landscape. There was a strange feeling in looking down upon the summits of these mountains which I had been accustomed to know only as so many giants of the horizon. The other hills had sunk into perfect insignificance, or rather looked pretty much the same as they do in relief models at the map shops. The entire length of the Lake of Geneva, with Jura beyond, was very clearly defined; and beyond these, again, were the faint blue hills of Burgundy. Turning round to the south-east, I looked down on the Jardin, along the same glacier by which the visitor to the Cuvercle lets his eye travel to the summit of Mont Blanc. Right away over the Col du Géant we saw the plains of Lombardy very clearly, and one of the guides insisted upon pointing out Milan, but I could not acknowledge it. I was altogether more interested in finding out the peaks and gorges comparatively near the mountain, than straining my eyes after remote matter of doubt. Of the entire *coup d'œil*, no description can convey the slightest notion. * * * * Where everything is so almost incomprehensible in its magnitude, no sufficient comparison can be instituted."



MONT BLANC.

KENSINGTON PALACE.



'EW of royal abodes have so little to recommend them in an rchitectural point of view as Kensington palace. Standing at he extreme west of London, surrounded by the semi-regal ansions of the nobility, parks, gardens, and far removed from ne turmoil of business, or the unseemliness of abject poverty, it eems to protest, by its bare and rigid aspect, against the advance f taste. It was originally the property of the Lord Chancellor 'inch, and was purchased from him by William III., who was ttracted by the beauty of the grounds which are attached to it, hich are of great extent, being upwards of three miles in rcumference, and are now beautifully laid out. After that, ueen Mary and queen Anne planted great numbers of trees in the gardens, and enlarged the promenades. During the reign of George I. it was still further improved; and queen Caroline, the wife of George II., had it all redecorated—a painter, architect, and gardener, being set to work under her own superintendence. About the same time Kent painted the grand staircase, and the ceilings of many of the rooms. The apartments contain paintings of great value, and portraits of many of the old masters. It was for many years occupied by the Duchess of Kent, and in it her majesty the Queen was educated and spent the greater part of her childhood. It will, doubtless, for this reason, possess unfading interest in the eyes of all future generations of Englishmen. In November, 1836, a violent storm laid waste the

gardens, and rooted up a great number of the trees, and the traces of its ravages may still be seen in the gaps which it made in the long alleys of fine old oaks. Entrance is obtained by six gates, four of which open into Hyde-park.

None of its royal owners displayed so great a predilection for Kensington Palace as George II. and his wife. If houses, the mute spectators of all the incidents of our domestic life, could preserve the echoes of the past, the walls of that old palace would still re-echo with horse laughter, the outbursts of passion, the brusque and positive tones of the German king, who in vain tried to temper his heavy stupidity and obstinacy by an admixture of French gallantry and frivolity. At bottom, however, he had a great deal of goodness of heart, and was by no means wanting in courage, and had the good sense to trust on all occasions to his queen, who was possessed of admirable delicacy and tact. Ably seconded by Sir Robert Walpole, the most astute, most wary, and most fortunate of English ministers, she was almost successful in making the nation think her husband a great man, and, at least, contributed largely to the prosperity which distinguished his reign. Contemporary writers say that she governed the king as pagan priests govern their idols; when prostrated before the altars in public, they receive with all the pomp and pride of ceremonial, and all outward marks of respect, the oracles which they have dictated in private. But so little did the king suspect that his wife possessed such power over him, that in enumerating one day to some of his courtiers the various influences which had predominated over his predecessors, he is reported to have said:—"Charles I. was governed by his wife; Charles II. by his favourites; king James by his priests; William by his partizans; Anne by her women; my father (George I.) by everybody who came near him." And then turning with a triumphant and self-satisfied air to his auditors, he added, "But who can be said to govern now-a-days?"

ON THE METHODS OF SILVERING AND ORNAMENTING GLASS.

The process adopted for silvering plate-glass, to form looking-glasses or mirrors, is as follows:—A leaf of tinfoil, rather larger than the plate to be silvered, is laid upon the flat table of stone or wood employed for this purpose, called the silvering-table, and a quantity of mercury or quicksilver is brushed over it by means of a hare's foot. When the surface of the foil has become uniformly covered, a small quantity of mercury is added, so as to reach a height of ten or twelve lines. The grey oxide of mercury floating on the surface is then removed with a wooden rod, and a brilliant metallic surface is produced. The plate of glass may now be placed upon the metal, but great care must be used, for if the plate were allowed to drop down in a perpendicular direction, dust and air would inevitably be thus allowed to get between it and the metal, and the result would be incomplete. The plate is, therefore, pushed slowly forwards from the side, with the longest edge foremost, taking care that this always dips below the surface of the mercury. By these means the introduction of all extraneous substances is avoided, and the metal alone brought into contact with the glass, whereby a brilliant surface is obtained.

The plate is now floating on a bed of quicksilver, under which lies the sheet of tinfoil, which has become amalgamated or combined with the stratum of mercury in juxta-position with it. The mirror is now covered with woollen cloths, loaded with weights, and the table being inclined at an angle of ten or twelve degrees, the surplus quicksilver runs away and is collected, whilst the amalgamated foil adheres to the face of the glass-plate. The last portions of the mercury are removed, and the drying of the plate effected by placing the latter in an upright position. Three or four weeks are required for completely coating the surface of a large mirror.

The convex surfaces of glass mirrors are silvered in a similar manner, but, instead of a flat table, a mould of plaster of Paris is made use of. Hollow mirrors or globes are silvered by the use of an amalgam consisting of one pound of bismuth, half a pound of lead, half a pound of pure tin, and two pounds of mercury. The first three are melted together, and the mercury added to the mixture when nearly cold. A very gentle heat is sufficient to melt this amalgam. In this state it is poured into a clean glass globe, intended to be silvered, by means of a paper funnel, which reaches to the bottom. At a certain temperature it will adhere to the glass, which, by a proper motion, may thus be silvered completely, and the superfluous amalgam poured out.

This process of coating glass with mercury and tinfoil has its disadvantages. In the first place, the health of the workmen employed suffers much from inhaling the mercurial vapours given off in the process. Again, a very considerable time is required for the silvering of a large mirror, and the process is liable to frequent mishaps. Sometimes the plate of glass is broken by the pressure of the weights with which it is necessary to load it, in order to insure the complete adhesion of the amalgam to its surface. At other times drops of mercury run down, and carry the amalgam with them when the silvered mirrors are placed endways, giving rise to curved streaks technically termed *worms*. The amalgam is also liable to spoil by crystallisation as well as by friction in carriage.

It will thus be seen that the way was open for the reception of any great improvement in the art of silvering looking-glasses. Various remedies as well as preventive means were tried with variable success to remove and overcome the difficulties and objections to which this process was liable.

In 1843 Mr. Drayton took out a patent for "improvements in coating glass with silver for looking-glasses," the object being to coat the surface of the glass not with amalgam of mercury and tinfoil as in the other case, but with *real silver*.

It does not appear that Mr. Drayton was led to this process by any experiments undertaken with the particular view of effecting improvements on the old process; the fact, however, that certain essential oils have the property of precipitating silver when in a certain state of solution in the metallic state having come under his notice, he was induced to try the practical application of this fact to the silvering of mirrors and other articles; thus carrying out, in successful practice, the mode of depositing silver by essential oils, which, in the hands of Count Rumford many years previously, had been used merely as a scientific illustration.

The silvering liquid proposed by Drayton, and which forms the subject of his first patent, is prepared in the following manner. One ounce of nitrate of silver is first dissolved in two ounces of water, to which is added half an ounce of spirit of hartshorn or ammonia; to this solution of nitrate of silver, after it has been filtered, three ounces of spirit of wine containing 20 to 30 drops of oil of cassia dissolved in it are added. This forms the "silvering liquid;" but being of no use if employed alone, it becomes necessary to prepare also another fluid, to which the name of "reducing liquid" is given; this latter fluid having the property of reducing or restoring to its former metallic condition the silver contained in the nitrate of silver dissolved in the silvering liquid.

The reducing liquid consists of a solution of one part of oil of cloves in three parts of spirit of wine.

The "silvering" and "reducing" liquids having been prepared, the surface of the plate of glass to be silvered is first well cleaned and polished, and then surrounded by a rim of putty, when a layer of the silvering liquid one or two lines in depth is poured upon it. A few drops of the reducing liquid are next added, the result of which addition is the formation of a film of brilliant metallic silver, attaching itself firmly to the surface of the glass: the rapidity of this deposit of silver being in proportion to the quantity of reducing solution employed. The coating succeeds best when the reduction proceeds slowly; a very few drops of oil of cloves are required for this purpose, from four to six drops being sufficient to produce a deposit of the silver contained in four ounces and a half of the silvering solution; the film of the metal deposited is so thin, that a square foot of it weighs only from 12 to 18 grains, the value of silver covering a surface of 10 feet by 5 feet, varying from 1-2500 to 1-1700 of a line in thickness, not exceeding from 7s. to 10s. in price.

The silvering liquid which remains after the operation is poured off, and allowed to stand for three or four days in a close vessel, as it still contains silver, and may be again used after it has been filtered and fresh ingredients added to it, in quantities proportionate to those of the materials consumed.

The *rationale* of this process, or the principle on which it is effected, is as follows:—The oxide of silver (silver in union with

oxygen) which was dissolved in nitric acid to form the nitrate of silver used in the silvering liquid, is decomposed or deoxidized by the oil of cloves, that is to say, this oil takes away the oxygen from the oxide of silver, and the silver thus separated from the oxygen falls down in the pure metallic state; the nitric acid which had been employed merely to dissolve the oxide of silver so that it might be obtained in the liquid form for the purpose required, enters into combination with the ammonia, forming nitrate of ammonia which remains in solution. These changes are also effected without any evolution of gas, which might materially interfere with the good result obtained by destroying the continuity of the metallic surface.

The table used in the "silvering" process is of a similar description to that employed in the quicksilver coating process, the glass to be silvered being fixed horizontally upon it by means of suitable mechanism. It is necessary that the plate of glass should be perfectly level, so that the liquid poured on shall be equally distributed over the entire surface of the plate.

The deposit takes place equally well when the surface is flat or of any other form. After it is silvered, it is washed to remove any impurities which may have been deposited with the silver, and then placed in a hot-air closet, where it remains for a few hours until perfectly dry, after which it is varnished to protect it from the action of the air and from mechanical injuries. A plate of glass of any dimensions may be silvered in 48 hours. The "silver" coating adheres much more firmly than that obtained by the old process.

Notwithstanding the evident advantages attendant on the use of the "silvering" process, the old process of "quicksilvering" glass is still employed in the coating of glass for looking-glasses. Although the quantity of silver required is but small, yet the price of the silvering process is about three times greater than that of the quicksilvering method, and this of itself forms a great bar to the adoption of the new process in the commercial manufacture of looking-glasses.

The darker colour of the coating has also been objected to, as well as the effect produced of imparting a dark yellow colour to the object represented.

The greater solidity and durability of the silvering process is, however, much in its favour; and although the first application is more expensive, the additional expense is compensated for by increased durability.

This process of silvering is at the present time being carried out on the commercial scale in Paris, and is more especially employed in the manufacture of reflectors, which are found to be far superior to those formed of polished and plated metal. Reflectors, some of them upwards of 4 feet by 3 feet, have been adopted in some of the lighthouses on the French and English coasts, and have been highly spoken of.

One great advantage of this process is, that surfaces, whether flat or hollow, in relief or in intaglio, can be silvered by its use, thus rendering its employment accessible for various useful and ornamental purposes, for which the "quicksilvering" process is inapplicable.

In 1848 Mr. Drayton obtained a second patent for silvering glass without the use of quicksilver. The new process is as follows:—One ounce of hartshorn or ammonia, two ounces of nitrate of silver, three ounces of water, and three ounces of spirit (spirit of wine being preferred), are carefully mixed together; the mixture is allowed to stand for three or four hours, and then it is filtered. To each ounce of the filtered fluid is added a quarter of an ounce of saccharine matter, dissolved in equal parts of spirit and water,—say about half a pint each. (The saccharine matter preferred for this purpose being grape sugar.) The solution is then allowed to stand for a few hours. The liquid may be used for depositing silver either upon horizontal or vertical surfaces, provided it is kept in contact with the glass, which is to be kept heated to about 160° Farenheit until the required deposit of silver has been obtained. As soon as the silver upon the glass is perfectly dry, it may be varnished with common elastic varnish, to preserve it from being injured by friction.

It will be seen that this process differs from the other in the nature of the solution used for reducing the silver (contained in the solution of nitrate of silver) to the metallic state. In the one case the essential oils of cassia and cloves are used, and in the latter a saccharine solution. In the former case no heat is necessary, but in the latter the reduction requires the agency of heat.

It is stated that this process possesses several advantages over the other. It is applied on the commercial scale in this country to the silvering of glass globes, vases, &c., by Messrs. Thompson and Co., of Berners-street, who have patented several improvements in the manufacture of glass vessels for useful purposes, such as inkstands, vases, drinking cups, glasses, &c. These are formed double, like one glass within another. The space between is filled with the silver solution through an orifice at the bottom, and when the vessel is sufficiently coated, is emptied, and the opening hermetically sealed. By the adoption of this process, all tarnish from the action of the atmosphere, and wear from continued use, is prevented, and the brilliancy of the glass is preserved as long as the article remains whole; thus uniting the ordinary advantages of glass with the apparent solidity of silver, and forming the nearest resemblance to silver workmanship that can be attained.

When the glass is cut, the brilliancy of the effect is heightened, and the soft floating character of the lights is broken up into countless scintillations. On the other hand, by grinding the glass surface, the reflection is dispersed, and the appearance of frosted silver and the delicate lustre of the pearl are produced. With coloured glass, a wide scale of metallic hues is obtained. These dazzling tints may be compared to the plumage of the humming-birds and the wing-cases of the buprestidæ and other tropical beetles. Indeed, there is not one of the gorgeous metallic tints with which the insect and feathered kingdoms are adorned, that may not be closely copied by this process.

Where the glass is stained yellow, the appearance of gold is very successfully imitated; deeper shades communicate the appearance of bronze; and by appropriate colouring and staining, and by flashing the colourless glass with thin layers of various colours, and cutting the latter away in devices, an endless variety of combined and contrasted effects, of singular beauty and novelty, are obtained. These combinations are composed with due attention to chromatic harmony and proportion, and in adapting the vessels themselves to objects of ornament or use, a proper regard to purity of form is observed.

The processes of luxury and utility to which this novel process has been addressed, embrace every article of table and toilet service to which glass is applicable: inkstands, paper-weights, paper-knives, pen-trays, lamp-pedestals, candelabra, candlesticks, salt-cellars, knife-rests, mustard-pots, sugar-basins, butter-coolers, smelling-bottles, flower-vases, &c.; and for interior decoration, door-knobs, finger-plates, mouldings, panels, and chandeliers, being, as Professor Donaldson observes, a new element in the hands of the architect. For moresque decorations, after the manner of the Alhambra, and similar examples in the Eastern style, this discovery is felicitously adapted, overcoming the want of sufficient brilliancy in the materials for construction, from which so many modern attempts in that direction have failed.

Nor is its value bounded by the useful elegancies of Art Manufacture, since it is equally applicable to objects of more practical utility, such as surgeons' speculæ, and railway and other reflectors. Constructed of silvered glass, these articles have a brilliancy beyond that of any other known reflectors, in addition to the advantages of durability, and of requiring no further cleaning than occasional wiping with a dusting cloth. Nor is there any limit to the dimensions of the objects which may be silvered, except the limit of the dimensions to which glass can be blown: nor can these limits be said to apply strictly to this manufacture, for large articles may be composed of separate pieces, and a vase, for example, thirty inches in height, and of proportionate capacity and strength, may be thus constructed, which could not be fashioned by the mere process of blowing.

Spheres of glass, of all diameters and capacities, up to forty gallons, are formed and silvered in this way; and so great is their power of reflection, that the entire details of a large apartment are caught upon them with surprising minuteness and clearness of definition, and in that amusing perspective which is peculiar to spherical substances. Another quality of this silvered glass is, that in whatever shape it may be fashioned, it contributes beyond any known material to the effect of artificial illumination, reflecting back unimpaired nearly the whole of the light that falls upon it.

THE LIME TREE *(Tilia).*

THE trees of this *genus* belong to the natural order *Tiliaceæ*, and are characterised by the possession of a five-parted deciduous calyx, five petals, numerous free or somewhat polyadelphous stamens, and a globose, villous, one-styled, five-celled ovary. Their leaves are alternate, heart-shaped, acute, serrated, and deciduous, with fragrant, yellowish panicled flowers. The wood is light, smooth, and white, and their sap possesses a large quantity of sugar. They are principally natives of Europe and America. Botanists differ in their nomenclature of the varieties which compose the *genus;* but the following are the names by which the principal species are most generally known.

Fig. 3.



A LEAF-CLUSTER.

Tilia Europœa, the European, or common lime tree. This variety, which grows very extensively in the middle and northern parts of Europe, is very common in England. Its petals are without scales, and its leaves, which are twice the length of the petioles, are cordate, acuminate, serrated, and smooth, with the exception of a tuft of hair at the origin of the veins beneath: the cymes are many-flowered, and the fruit is coriaceous and downy. Its large size, handsome appearance, and profusion of sweet flowers, cause it to be a very general favourite throughout this country and most parts of the continent, where it is extensively planted in parks and other places of public recreation. Its wood is well adapted for carving, being white, close grained, and smooth. The carvings at Windsor castle, those of Trinity college, Cambridge, and at Chatsworth, are of lime wood, as, indeed, are most of the other fine specimens of this branch of art in England. The fibres of the bark, which is tough, form the material of an extensive manufacture in Russia and Sweden, which is carried on to a considerable extent in this country too. Nor are these the only ways in which it is profitable. Its flowers secrete a large quantity of nectar, and exhale a delicious scent, which renders them a great favourite with bees. The honey thus procured is in great repute, and has given celebrity to the honey of Kowno,

Fig. 4.



BLOOM.

Fig. 5.



A ROW OF LEAVES.

Fig. 1.



THE TRUNK.

on the Niemen, in Lithuania, a small town which is surrounded by a forest of lime trees. Many specimens of this tree exist, which are remarkable for their great age and size. At Neustadt, in Wirtemberg, there is a prodigious lime tree which gives its name to the town, which is called *Neustadt an der Linden* (Neustadt of the lime tree). The age of this enormous tree is said, probably with exaggeration, to be one thousand years. According to a German writer, it required the support of sixty pillars so early as the year 1392, and attained its present size in 1541. It now rests its immense foliage, says the same authority, on above one hundred props, and spreads out so far that a market can be held under its shade. It is of this tree that Evelyn (writing in the middle of the seventeenth century) says that it was "set about with divers columns and monuments of stone (eighty-two in number, and formerly above one hundred more), which several princes and noble persons have adorned, and which as so many pillars serve likewise to support the umbrageous and venerable boughs; and that even the tree had been much ampler, the ruins and distances of the columns declare, which the rude soldiers have greatly impaired." There is another colossal specimen of the same species in the church-yard of the village of Cadiz, near Dresden. The circumference of its trunk is said to be forty feet. A singular circumstance in connexion with it is, that though it is completely hollow through age, its inner surface is covered with a very fresh and healthy bark. Besides these there are many other very old individuals of this species both in England and on the continent. The principal street of Berlin is called *Unter der Linden* (between the lime trees), from the rows of these which grow on each side, and of which, it is said, the Electoress Dorothea planted the first with her own hands, in the year 1680.

T. parvifolia, the small-leaved, or, as it is called in Germany, the winter lime tree. Its petals are without nectaries or scales, and its leaves very similar to those of the last species; like which, too, it grows in forests, both in lowland and mountainous districts. Its trunk grows perfectly upright, and is covered with a jagged, rough bark, which becomes smooth as it ascends to the upper branches. Trees of this species do not generally grow so large as those of the last. The greatest diameter of its trunk is about six feet, and its usual height eighty feet. It attains its full growth in one hundred and fifty years, and its age averages from two hundred to three hundred years. The wood is not so white as that of the European lime, but it is of a reddish yellow colour. Its trunk is not so round as that of the other, but is more knotty.

Fig 2.



THE BODY OF THE TREE.

Its greatest peculiarity, however, is the smallness of its leaves, which are only from one inch and a half to two inches in breadth. It is a native of the subalpine districts in the north of Europe. In this country it is common in the woods of Essex and Lincolnshire.

T. rubra, the red lime tree, which many botanists consider merely a variety of the European lime, is a native of Taurida. It has, like all the other species, cordate leaves, unequal at the base, and hairy beneath; the fruit globose and smooth. When young, its branches are of a beautiful coral red colour, and thence it has been called by some botanists *T. corallina*.

T. grandifolia, or the broad-leaved lime. The peculiarity from which this variety takes its name, is its chief distinction. Its

leaves, which, like those of the others, are heart-shaped and serrated, vary in breadth from three to six inches. It attains its full growth in about one hundred years, and then varies in height from sixty to one hundred feet, with a diameter of trunk of from two to three feet. The bark of the young tree is of a dark green hue, and is covered with wart-like excrescences; in old trees it turns to a reddish grey colour. In Switzerland and the south of Europe this is the most common of all the varieties of the lime tree. It is scarce in this country. In the church-yard of Seidlitz, in Bohemia, there are some specimens of this tree with leaves contracted into the form of a hood. Tradition has it that they miraculously assumed this shape from the time that the monks of a neighbouring convent were all hanged upon them.

The species which have now been noticed are the most important of the European varieties of this tree. They all differ from those of North America in *not* having nectaries or scales at the base of their petals. A brief enumeration of the American varieties will be sufficient to render this sketch of the lime tree tolerably complete.

T. glabra, or black American lime. The leaves of this tree are deeply cordate, serrated, and somewhat coriaceous and smooth. The petals are truncate and crenate at the apex, and equal in length to the style; the fruit is ovate and somewhat ribbed. It is a native of North America, in Canada and the northern parts of the United States. It is only found in the southern states at a considerable elevation on the Alleghany mountains. It was introduced into England in 1752, but has not been much cultivated.

T. laxiflora, or loose-flowered American lime, is a native of America from Maryland to Georgia. It has cordate, serrated, smooth leaves; loose panicles of flowers; emarginate petals; and globose fruit. Loudon considers it and the other American limes as only varieties of the last species. It has been known in England only since the year 1820, and but little planted since then.

T. pubescens, or pubescent American lime, is a native of the southern parts of the United States, from Virginia to Georgia, where it is principally found on the banks of rivers. Its leaves are somewhat cordate and oblique, truncate at the base, and pubescent beneath; the petals are emarginate, and shorter than the style; the fruit is globose. It is a much less vigorous tree than the last, and has much smaller leaves, and more slender branches.

T. heterophylla, or white American lime. This tree is very abundant in Maryland, Delaware, and the western states of America. Its leaves are ovate and downy beneath, sometimes cordate at the base, and obliquely or equally truncate; its fruit is globose. The white American lime has been known in France for more than a century, but was introduced into England only so late as 1811.

Thus the different varieties of this beautiful tree will have been seen to be almost rather varieties of the same species, differing only in some slight physiological details, than distinct species in themselves. A general description of all would correctly apply, with some inconsiderable exceptions, to each individual variety.

Our illustrations will convey an accurate idea of the various parts of the tree and its foliage.

The engraving (fig. 1) represents a very aged trunk, in which the usual direction of the decay is very correctly shown.

Fig. 2 is a drawing of the body of the tree, in which, especially in close contiguity to the larger boughs, the somewhat knarled and twisted character of the smaller branches is faithfully exhibited.

Fig. 3 is a cluster of leaves, which, perhaps, will better enable the reader to understand their peculiar formation and arrangement than he could do from a verbal description given in the usual botanical phraseology.

Fig. 4. In all except colour this engraving perfectly represents the delicate and very beautiful bloom of the lime tree, from its first bud to the formation of its fruit.

In fig. 5 the exact position of the leaves on the stock is still more minutely depicted.

THE FIRST NOTES OF SPRING.

There is only a complaining chirp, here and there, if the mornings of April continue cold, and the birds are chiefly glimpsed in short flights under the hedges. But, if the weather be mild and open, and there be gleams of sunshine, then, as we track our way through the miry path of the stubble or turnip-field, a few birds are seen running along the furrows, while one of them, perched on a clod partially rearing his crest, and looking around, at once complacent and confident, utters a series of sounds, as if he were trying the highest and the lowest notes of an instrument. He does all this indeed, in under tones, yet pleasantly do they fall on the ear especially when they are regarded as the prelude to the full and swelling harmony of Nature's orchestra.

With such notes are identified many interesting and delightful objects: one plant after another, according to the peculiarities of its structure, sending forth, as the temperature increases, its tender shoots and leaves, in due succession, till every field, and garden, and grove, is teeming with beauty and fragrance; while the lowing of the cattle as they luxuriate in the green fields; the bleating of the sheep, grazing on the heath-clad hills, with their lambs frolicking gaily about them; the hum of the bees, as they fly from flower to flower, to gather honey, combine with the varied notes issuing from the bush and brake, in one common hymn of gratitude and praise to the bounteous Giver of all good.

The favourite abode of the sky-lark in Ireland is the wild mountain pasture. In Germany it prefers plains, but frequently fields and meadows. There, as in the northern parts of continental Europe, it is a bird of passage, migrating southwards, in vast flocks, in the month of October, and returning early in the spring. In England these birds, on the approach of the severity of winter, collect from all quarters into extensive flights, while arrivals from the northern regions of the continent contribute to their numbers. The sky-lark prefers the more southern portion of our island; he seeks sheltered situations, and most truthfully it is said—

> "The daisied lea he loves, where tufts of grass
> Luxuriant crown the ridge; there, with his mate,
> He founds their lonely house, of withered herbs
> And coarsest spear-grass, next the inner rock.
> With finer and still finer fibres lays,
> Rounding it curious with his speckled breast."

The nest, too, is commonly placed, if early in spring, in a slight hollow, beside a clod or stone, to screen it from the cold, and always on the sunny side, south or west. Nor is this all the precaution taken by the little feathered artificer. The edges of the nest are raised a little above the surface, having a slope outwards, and being, as it were, thatched. The position, too, in which the bird sits is a further security: the head is always turned to the weather; the feathers of the breast and throat completely prevent the rain from entering the nest at that side, while the wings and tail act as pent-houses in the other parts; and, when the weather is violent, and the rain at a small angle with the horizon, the front of the bird, on which the plumage is thickest, receives the whole of it.

In vain do we look for the lark chirping on the clod;—it is gone; nor can it be traced as we gaze around the arable champaign. But, hark to that note! how it comes trilling down upon the ear! what a stream of music, indeed, note falling over note in delicious cadence! For the lark is now warbling on the wing, raising its note as it soars, until it seems lost in the immense height above us; the note continuing, even when the bird itself is invisible;—and if we wait, we shall see it descending with a swell as it comes from the clouds, yet sinking by degrees, as it approaches its nest—the spot where all its affections are centered—the spot that has prompted all this joy.

The opening of the year, as well as of the day comes fresh to imagination as the exclamation rises to the lip,

> "Hark! the lark at heaven's gate sings;"

hence we listen to its song with peculiar delight, and say with Wordsworth:—

> "To the last point of vision, and beyond,
> Mount, daring warbler! that love-prompted strain,
> ('Twixt thee and thine a never-failing bond,)
> Thrills not the less the bosom of the plain;

Yet might'st thou seem, proud privilege! to sing,
All independent of the leafy Spring.

Leave to the nightingale the shady wood;—
A privacy of glorious light is thine,
Hence thou dost pour upon the world a flood
Of harmony, with rapture more divine:
Type of the wise, who soar—but never roam,
True to the kindred points of heaven and home."

The time when the lark is first in song, its general appearance, and especially its habits, render it a favourite; and even those who go in quest of nests, often regard the humble dwelling of this songster with a feeling which partakes of veneration. The safety of the lark from birds of prey, consists in the closeness with which it can lie, and the similarity of its colour to that of the clods. It is said that, by ruffling its plumage, it assumes the surface and tint of a heap of wet mud. When on the wing, it generally soars above the birds that beat the bushes, and, if they attempt to approach it, the lark does not descend in the curve it usually forms when alighting, but drops down perpendicularly, just like a stone. It has less fear of man than many of the little birds: for it sings joyously over the fields while their culture is advancing; and it will frequently alight to pick up the insects and worms which are then disclosed by the plough and the harrow. Its song, too, continues for eight months, and thus the history of this little minstrel is identified with the natural phenomena of the greater part of the year.

The lark is often caged, and accustomed as it is to soar towards the heavens when singing,—the very type of liberty—we are conscious of regret whenever we see it forbidden to wing, at pleasure, its upward and lofty flight. Yet, it should not be forgotten that this little bird often enlivens with its cheerful song the toil of the artisan, shut up in the narrow street, or still narrower court, of some town; while it recalls the rural scenes of earlier life, or aids the imagination in picturing the verdant and sun-lit meadows, bordered, it may be, by fertile hills or mountains, with which its notes are indissolubly associated. And then, regret may be soothed with the thought that the sky-lark is generally treated with affectionate care; often, indeed, is the first walk of the artisan taken in the very early morning, that he may bring home a fresh sod of clover to be placed in the cage of his tuneful favourite.

"Nowhere," says Mr. Thompson, "is the sky-lark more sought for, as a cage-bird, than in Ireland; and the song given forth right merrily from the little patch of green sward, seems to imply that the bird bears its confinement well." The same naturalist also tells how one of them was valued by "a rather poor chandler in Belfast." A great bird-fancier one day entering the shop, said that he had come to purchase his lark. "Indeed!" was the reply; "I do not think that you are likely to get home that bird, which delights all my neighbours as well as myself." But now the powerful motive was presented. "Well, I think I am; here are five guineas for it." Yet this sum was instantly refused, as were ten guineas immediately after. A further, and, it was presumed, a conclusive appeal was now made: "It is the fair-day, and the market full of cattle; go and purchase the best cow there, and I will pay for her." But the offer was made in vain, and the lark continued its song in the same humble shop.

BERZELIUS, THE SWEDISH CHEMIST.

The science of chemistry did not take its rise until towards the close of the last century, but since that time the progress which it has made has never been equalled in any other department of human knowledge. Hardly a year passes over our heads without leaving behind some new and astounding discovery, and yet the future is vague and uncertain, because no man can tell how much may yet be achieved. Bodies which were for a long time regarded as compound are now known to be elementary; new ones have been discovered, and combinations have been effected which the men of 1800 would doubtless have deemed impossible, until at length there is hope entertained that before very long some means may be discovered of making diamonds and gold.

Chemists, then, have no great masters of antiquity to imitate or revere. Their great men are all of the present age—the Liebigs, the Davys, the Blacks, the Priestleys, and Lavoisiers; and not least amongst these was Berzelius. Many have made more brilliant discoveries, or have enunciated more striking theories, but none has played a more important part in the progress of science during the thirty years which ended with his death in 1848. John Jacob Berzelius was born on the 29th of August, 1779, at Vaefersunda, a village in Ostgothia, the same province which gave birth to Linnæus. His father was the master of the parochial school, and taught him the first elements of knowledge. He was set apart by his parents for the study of medicine, and they sent him when he was only seventeen to the university of Upsal. Upon entering, he gave most of his time and attention to chemistry, under the direction of Afzelius, who was professor of the science at that time, and was assisted by Ekeberg; but as all the lectures were delivered with but few, if any, illustrations, it may be readily conceived that little progress could be made in this way. One day in the week, however, the pupils were admitted to the laboratory, but Berzelius managed to get in every day, and as he had perceived at an early period that his instructors could neither direct his studies nor satisfactorily explain the phenomena which were produced before their eyes, he set to work for himself, accompanying his experiments by diligent and attentive reading. Chemistry, as taught at that period at Upsal, was nothing but a mass of vague ideas, obscure and often contradictory, so that few cared to occupy themselves with it. But the ardour of young Berzelius increased as he proceeded, and the perseverance with which he sought to obtain the solution of difficult questions excited the admiration of his fellow students, and the envy and secret dislike of the professors. Having finished his course he came to Stockholm, and was there appointed assistant to Professor Sparman, who then occupied the chair of medicine at the university; and at the death of the latter in 1806 he was appointed to the vacancy. In the school of medicine at Stockholm there were then but three professors, who divided the course between him. Berzelius taught pharmaceutical chemistry, but his course was for some time by no means successful, because like his old master, Afzelius, he read his lectures, but did not exhibit any experiments. In 1812, however, he paid a visit to London, and while here had an interview with Dr. Marcet, who gave him a list of the experiments by which he had illustrated his course. Some time after the two chemists again met at Genoa, and Berzelius then showed the doctor an immense number of additions which he had made to his list, and which the latter copied. These were shortly after adopted in all the Swedish universities, and in most of those on the continent.

His lectures were now full of interest and instruction, and his lecture-room was always crowded to excess. All the time he could spare from his official duties was devoted to private study.

In 1806 he commenced a periodical work entitled "Memoirs upon Physics, Chemistry, and Mineralogy," in which he inserted full accounts of the results of all his researches. This procured his admission, in 1808, to the Academy of Science at Stockholm, of which he was elected president in 1810, and from 1818, until his death in 1848, he was secretary likewise. In 1804, while making with another chemist some researches upon a mineral found in a copper mine, he discovered the oxide of a new metal, to which he gave the name of cerium, from the planet Ceres which had just then been perceived for the first time. The invention of the galvanic battery by Volta, led him to make observations upon the action of this new agent upon various bodies; and in being the first to discover that it had the property of decomposing salts, Berzelius had the honour of preparing the way for Davy's great achievement — the decomposition of alkalies, which until then were considered simple bodies.

In 1823 he started a periodical publication which had great influence upon the progress of chemistry—the "Annual Report upon the progress of Chemistry, Physics, and Mineralogy." It appeared regularly during twenty-five years. In this work he discussed and criticised all the chemical works which appeared

during the year; and that he might be better enabled to judge of their accuracy, he made all the experiments to which they referred himself. However praiseworthy his object might have been, this exposed him to a great deal of envy and obloquy, as the severity of his strictures often wounded the self-pride of individuals who had attained to considerable eminence, and did not acknowledge Berzelius's superiority. Still there is no work the dicta of which are received with so much deference.

In 1825 he published his essay on the "Employment of the Blow-pipe in Chemical Analyses and Mineralogical Researches." This instrument had been already made use of in chemical experiments by Swab, Cronstadt, Bergmann, and Gohn, so that it was peculiarly Swedish in its origin, and almost in its use.



BERZELIUS.

It was left for Berzelius, however, to bring it to the highest perfection, and thus to work a complete revolution in mineralogy and metallurgy. He showed that in directing the flame of a spirit lamp or wax taper upon the fragments of most minerals when placed upon live coal, in their fusion, the bodies may be discovered which enter into their composition. If this were not sufficient, he added some simple reagents, which in combining with the body upon which the experiments were being made, revealed its nature and component parts.

He also published a "Treatise on Chemistry," which went through five editions. But these new editions were not merely reprints; each one was carefully re-written by the author, and in it were incorporated all more recent discoveries, whether made by himself or others. The fifth appeared in 1842, and Berzelius seems to have been almost assured that it would be the last. In the preface, he says: "I cannot conceal from myself that, should the Supreme Being grant me strength to complete the present edition, it must, necessarily, be the last." Severe and oft-recurring attacks of gout warned him of the approach of the great enemy six years before he came; and these, combined with repeated indications of liability to apoplexy, rendered the closing years of his life painful and laborious, although they did not by any means diminish his activity. He never laboured under any delusion regarding his health, but, like a truly great man, he wrought earnestly in his high vocation while it was day, knowing that the night was at hand when no man can work. Besides those we have mentioned, he was the author of many smaller works, in which he has given his various discoveries in full detail—those of six simple bodies—viz., thorinium, cerium, selenium, zirconium, and columbium. He placed beyond doubt the metallic nature of ammonium, and showed the various properties of silica, which acts as an acid upon a great number of bases from which result salts—such as the silicate of potassium, the silicate of iron, &c. He improved the nomenclature of Lavoisier, and placed upon a firm basis the simple laws which regulate all chemical combinations, and applied to their operation the electro-chemical theory, with all its consequences. He raised the study of chemistry in the eyes of the world by his analyses of blood, urine, milk, and tears, showing the presence of lactic acid in the last—a discovery of the utmost importance in a physiological point of view. He died, as we have already said, in 1848.

PAUL POTTER.

The Dutch school of painting, although it has attained to great celebrity, owes none of it to the dignity, imagination, or *beau ideal* of its works. They are all addressed to the eye, and require no effort of the mind to judge of their excellence or truthfulness. Their subjects are mostly drawn from the most unromantic, and often the coarsest scenes of low life. Phlegmatic Dutchmen quarrelling over their beer, a fishwoman skinning an eel, a young woman peeling a turnip, a cow chewing her cud, peasants with hobnailed shoes dancing in a gin-shop, have all been depicted on canvas with lavish expenditure of labour, ingenuity, and colouring. To have been born in the thick atmosphere of Bœotia was in ancient times a synonyme for heavy stupidity; and though many instances have occurred to prove that the connexion between thick air and thick skulls cannot always be shown to exist, there can be no doubt that the Dutch, the inhabitants of the lowest-lying, foggiest, and dampest country in the world, are also the least poetical and least imaginative of all the nations of western Europe. Artists generally mould their style to suit the



LANDSCAPE, WITH CATTLE. FROM A PAINTING BY POTTER. ENGRAVED BY FREEMAN.

tastes of their public, and every work of the Dutch school bears testimony to the matter-of-fact character of the people. Every one of the subjects we have been mentioning excites admiration in Holland. "To the Dutch," to use the expressive words of Allan Cunningham, "Ostade is a Raphael, and Rembrandt a Titian; and boors quarrelling at a fair, a scene in Paradise peopled with angels."

Amongst the foremost of this school, not merely in execution, but in point of taste, was Paul Potter. He was the son of a painter who never got beyond mediocrity; and as soon as he was able to hold the pencil or brush, he gave undoubted evidences of his extraordinary ability in drawing animals and pastoral scenes. His short life was wholly devoted to the study and delineations of the landscapes which surrounded his birthplace. Amsterdam, where he was born in 1625, is, however, a town rather maritime than pastoral, and he therefore left it and fixed his residence at the Hague, where he married the daughter of an architect. The Hague is admirably situated in the midst of luxuriant meadows, close to a large forest which extends to the sea. It is perhaps the only town of northern Europe situated so near the ocean, which can boast the possession of such fine trees. To describe the freshness, verdure, and calm repose of the surrounding scenery, was a task peculiarly adapted to Potter's powers. He seems to have entered fully into its spirit; but it is as a painter of animals that the firmness, vigour, and truth of his sketches are fully displayed. Cows, oxen, sheep, and goats, he painted in the highest perfection. His colouring is soft, agreeable, and true to nature; his touch is free and delicate, and his outline very correct. His skies, trees, and distances, show a remarkable freedom of hand, with a masterly ease and negligence. He was certainly one of the best painters of Holland, not only for the freedom of his pencil, but for his exact imitation of nature, which he incessantly studied. His chief and in fact only amusement was walking in the fields, sketching every object and scene on the spot; and he afterwards composed his subjects from his drawings, and frequently etched them. All his paintings bear a very high price, and are very scarce in consequence of his dying so young, being only twenty-eight years of age. One of his landscapes, which he painted for the Countess of Solmes, was sold to Jacob Van Hoeck for two thousand florins. The correctness of the animals in their various postures and physiological structure, the verdure of the trees and correctness of the leafing, are sufficient guarantees of the genuineness of his works. The painting from which our engraving is taken is considered his *chef d'œuvre*. The man and the animals are of life size, and the background is exquisitely finished. It formerly belonged to the collection of the Prince of Orange, was carried off and placed in the Louvre by Napoleon, and was restored in 1815, and is now in the Museum at Amsterdam. It is stated to be worth £16,000. Potter has only left one hundred paintings in all, and but a few of them are in England. There are three in the Dulwich Gallery; but the best are in possession of Her Majesty and the Marquis of Westminster.

PRINCIPLES OF ART APPLIED TO DOMESTIC USE.

You are going to decorate your drawing-room or dining-room both with furniture and colouring. Before you speak to your upholsterer or house-painter, have a perfect understanding and recognition of what is the aspect of the room. Let no circumstances make you regardless of this fundamental consideration. No cost will remedy the forgetfulness. Spend what you will, you will always repent having a cold colour in a room lighted from the north, or a very hot colour in a room lighted from the south. If the aspect be north, north-east, north-west, or due east, the general tone of colouring should be positively warm. Blues, greens, and all shaded colours which involve any predominant use of blues must be avoided. There is a drawing-room in the Reform Club, looking north, which may convince any one of the mistake of forgetting aspect. The walls and curtains are blue; with all its elegance—and its ceiling and cornice are beautiful—the effect of this room by daylight is always chilly. It would be just the reverse if it looked upon Carlton Gardens. There is also a room in Windsor Castle, looking on the north terrace, called queen Adelaide's room, which is decorated with blue and silver, a most frigid-looking room even in the midst of summer. In such aspects the choice should tend towards reds, and all their various combinations with yellow. As the aspect approaches east and west, so colours should verge towards yellow rather than red tints. In an eastern aspect, tints of light yellows, lemon-colours, &c., are always effective and cheerful. If the aspect of the room be south, south-west, or west, and open to the sun, then we may venture on the use of cooler colours, even on positive blue, should our taste lead us in that direction.

The supply of light, the size of the room, and its purpose, appear to be the chief circumstances which ought to regulate the strength or depths of the colours to be used. Where the light is strong, unobscured, and plentiful, the tone of the colouring may be full; on the other hand, where the supply of light is small, the tone of the colouring should be light. In the houses of the ancients, the strongest and darkest colours, even blacks, were used on large surfaces, when the apartment received a direct and full light from above. Under a strong and abundant light, full-toned colours preserve their brightness and distinctive character, but when the light is feeble, and the supply of it limited, they become dull and gloomy. Full-toned colours lessen the apparent size of the room; light colouring enlarges it. A little attention to the proportion between the space to be coloured and the depth of the colouring, becomes therefore of great importance. If you wish to make your room appear as large as possible, then exclude dark colouring, not only on the large surfaces, but even in the patterns of the paper-hangings, and in the mouldings and ornamental parts. The nature of the use to which the room is applied, should also influence the decision as to the tone of colouring. If the room is used mostly by artificial light, which, being less pure than day light, materially modifies the appearance of most colours—much or little, according to their strength—then keep the colouring light. If, on the other hand, it is a room for occupation during daylight, then the tone of colouring must be deep. Red and green, with black, appear dark and grave; with white, they appear gay. We see these effects strikingly illustrated in book wrappers. Black letter-press is applied indiscriminately to red, blue, lilac, green and yellow covers. A publisher of taste would do well to consider how much the purchase of a book is affected by the first impression it makes.

BEN JONSON.

"Here is a poet! whose unmuddled strains
Show that he held all Helicon in's brains.
What here is writ, is sterling; every line
Was well allowed of by the Muses nine.
When for the stage a drama he did lay,
Tragic or comic, he still bore away
The sock or buskin; clearer notes than his
No swan e'er sung upon our Thamesis,
For lyric sweetness, in an ode or sonnet,
To BEN the best of wits might vail their bonnet.
His genius justly, in an entheat rage,
Oft lashed the dull-sworn factors for the stage:
For Alchymy, though't make a glorious gloss,
Compared with gold, is bullion and base dross."

HODGSON.

BENJAMIN, or, as he himself usually shortened his name, Ben Jonson, "made his first entry on the stage of this vain world," says one of his early biographers, "about a month after his father's death, within the city of Westminster." This happened in the early part of 1574, while the "good queen Bess" was upon the throne. His grandfather, who was a man of some family and fortune, originally settled in Annandale, in Scotland, from which place he removed to Carlisle, and was subsequently taken into the service of Henry VIII. His father, who was probably about the court, suffered a long imprisonment under queen Mary, for his religious opinions, and finally lost his estate. Subsequently, in Elizabeth's reign, he entered into holy orders, and became "a grave minister of the gospel." His preferment, however, must have been scanty, as his widow was obliged to marry a master bricklayer in somewhat less than two years after his death. Such were the early facts of Ben's family history.

When the future poet became of sufficient age, he was sent to a private school near St. Martin's-in-the-Fields; and there he acquired a respectable acquaintance with the rudiments of general knowledge. From this school he would probably have been taken to follow his step-father's business, had not a friend, whose name is not mentioned, sent him, at his own expense, to Westminster school, where the great Camden was then second master. This celebrated man was not slow in discovering, nor negligent in cultivating, the extraordinary talents of his pupil. How long he remained under his care is not known; but the poet, who had a warm and affectionate heart, ever after cherished the deepest gratitude for the kindness of his old master, whom he thus addresses in one of his epigrams:—

"Camden, most reverend head, to whom I owe
All that I am in arts, and all I know."

And, again, in the dedication of his *Every Man in his Humour*, he tells his "most learned and honoured friend" that he "is not one of those who can suffer the benefits conferred upon his youth to perish with his age," and adds: "Now I pray you to accept this—such wherein neither the confession of my manners shall make you blush, nor of my studies repent you to have been the instructor; and, for the profession of my thankfulness, I am sure it will, with good men, find either praise or excuse."

About his sixteenth year young Jouson left Westminster for Cambridge, where the kindness of the friend who had hitherto borne his expenses procured him an exhibition, and he was accordingly, as Fuller says, "statutably admitted into St. John's College." But his stay at the University was short; the exhibition was found inadequate to his support, and, much against his will, young Ben returned to his home. Here he laboured for a time at his step-father's occupation, with which he was soon disgusted, and, seeing no other means of escape from its "ignoble drudgery," he volunteered into the army then employed in Flanders. His stay in the low countries, however, only extended over one campaign, and he returned to England, bringing with him nothing more substantial than the reputation of a brave man, a smattering of Dutch, and an empty purse. His situation, at this time, was hopeless enough. In the occupation of a bricklayer he had attained no skill, and, even if he had, his aversion to the business was unconquerable. To turn his education to some account was, therefore, his only resource, and accordingly, about the age of nineteen, he turned to the stage. Like so many others of his period, he commenced as an actor before he became a writer. His *début* was made at the "Green Curtain in Shoreditch," where he continued for a time with but indifferent success. But an event now occurred which threatened more serious consequences than an interruption of his professional labours. Quarrelling with a fellow actor, he was "appealed to a duel;" the challenge was accepted, and he killed his antagonist. As duelling was at this time reckoned no better than murder, Jonson, severely wounded, was thrown into prison,

and, as he says himself, "brought near the gallows." During his confinement he was visited by a popish priest, "who," says his best biographer, "took advantage of the unsettled state of his religious opinions to subvert his mind, and induce him to renounce the faith in which he had been bred, for the errors of the Romish church."

We may here remark, however, that he returned to the bosom of the English church about the year 1606.

On his deliverance from prison, he returned to his theatrical pursuits, and married. This last prudent step was taken about 1594. He now began to write as well as act, and two years after the date just mentioned, *Every Man in his Humour*, the first of his known comedies, appeared. This production, which was highly successful, bears throughout strong traces of the ennobling idea which Jonson had already formed of poetry in general, and of the true and dignified office of the Dramatic Muse.

"Indeed if you will look on Poesie,
As she appears in many, poor and lame,
Patch'd up in remnants, and worn-out rags,
Half-starved for want of her peculiar food,
Sacred invention; then I must confirm
Both your conceit and censure of her merit.
But view her in her glorious ornaments,
Attired in the majesty of art,
Set high in spirit with the precious taste
Of sweet philosophy, and, which is most,
Crown'd with the rich traditions of a soul
That hates to have her dignity profaned
With any relish of an earthly thought;
Oh, then, how proud a presence does she bear!
Then is she like herself; fit to be seen
Of none but grave and consecrated eyes!"

According to Steevens, the whole of the prologue to this comedy "is a malicious sneer at Shakspeare," with whom Jonson had had some disagreement about theatrical matters before he composed it.

In 1598, Jonson endeavoured to render his play still more popular by changing the scene and proper names from Italian to English; and thus altered it was brought out at the Blackfriar's theatre, Shakspere himself being one of the principal performers. His next piece was the comic satire of *Every Man out of his Humour*, which appeared during the following year. This piece was likewise successful: its leading characters are drawn with vigour; the exposure of absurd humours is excellent; and there is some real, though much laboured, wit in the dialogue. Yet, as Mr. Gifford, his best editor, allows, "the plot is progressive, but not well combined; the action awkwardly helped forward by the chorus; and the catastrophe, though sufficiently ingenious, not altogether legitimately produced by preceding circumstances." The epilogue contains some gross flattery of Elizabeth, who was present during one of its performances. In 1600 he produced his *Cynthia's Revels*, which was a satire upon the grave and formal manners of the court. *Cynthia* was the queen, and under this name he belauds "the obdurate virgin" in the following style:—

"O front! O face! O all celestial, sure,
And more than mortal! Arete, behold
Another Cynthia, and another queen,
Whose glory, like a lasting plenilune,*
Seems ignorant of what it is to wane.
Not under heaven, an object could be found
More fit to please."

The *Poetaster* followed in 1601, when it was brought out at the Blackfriars by the children of the queen's chapel. This piece was occasioned by a quarrel with Decker, who is satirised under the name of Crispinus. Decker retaliated in a play called *Satiromastix*, in which Jonson appears under the title of Young Horace. The *Poetaster* brought its author into considerable trouble; and after a few representations he added to it an "Apologetical dialogue," in which he gave notice that his next efforts would be given to tragedy:—

"And since the comic muse
Hath proved so ominous to me, I will try
If tragedy have a more kind aspect:
Her favours in my next I will pursue."

He did so, and *Sejanus* appeared. This tragedy was not successful at first, but being recast, it was brought out (in 1603) at the Globe, and Shakspere performed in it. This play possesses merit of the highest order. In the strong masculine delineation of its characters, even Shakspere himself has nothing superior to it; whilst the manners of the age in which it lies are described with a graphic power which proves its author's profound acquaintance with antiquity.

On the death of Elizabeth, and accession of James I., fairer prospects began to open on Jonson. The queen had been penurious; and when she did give, was more fond of rewarding flattery than merit; but James was more generous, and our poet had the good fortune to be quickly received into his favour. Its tenure, however, threatened to be short. Marston and Chapman had written a comedy called *Eastcrwood Hoe!* in the composition of which Jonson was suspected of having taken part. One passage of this piece contained some taunting reflections upon the Scotch, and the testy monarch accordingly ordered the arrest of the three poets. But, after narrowly escaping the loss of ears and noses, the offending authors were released, but not without much interest. Ben was again taken into favour by the king. His noble play, *Volpone, or the Fox*, was the next production of his muse. This, which far surpassed any of his previous efforts, was brought out at the Globe in 1605. It was followed, in 1609, by his *Epicœne, or the Silent Woman*, which Dryden regarded as a perfect comedy. The next year witnessed the production of the noblest effort of Jonson's genius—*The Alchymist*—from a scene in which our illustration is taken. "This drama," says one of the latest biographers of its author, "has never been surpassed by the most glorious efforts of genius." It is a marvellous satire upon the vices and follies of the age.

Alchymy and astrology were then in high repute, and had their dupes amongst the most learned men of Europe. With the pretended mysteries and powers of these wide-spread delusions, our poet was perfectly acquainted, and in this greatest of his plays he brings them into deserved ridicule by describing some of the scenes which were then of daily occurrence in the sanctums of these *soi-disant* philosophers. Our engraving represents a tobacconist, named Abel Drugger, Subtle, an alchymist, and Face, his butler and tool, who calls himself captain. Drugger is opening a new shop, and desires to know where the door and windows should be, and how his shelves and boxes ought to be arranged. The scene is one of the best in the play:—

"*Subtle.* What is your name, say you, Abel Drugger?
Drug. Yes, sir.
Sub. A seller of tobacco?
Drug. Yes, sir.
Sub. Umph! Free of the grocers?
Drug. Ay, an't please you.
Sub. Well—your business, Abel?
Drug. This, an't please your worship:
I am a young beginner, and am building
Of a new shop, an't like your worship, just
At corner of a street. Here is the plot on't—
And I would know by art, sir, of your worship,
Which way I should make my door, by necromancy,
And where my shelves; and which should be for boxes,
And which for pots. I would be glad to thrive, Sir:
And I was wished to your worship by a gentleman,
One Captain Face, that says you know men's planets.
Sub. I do,
If I do see them ———"

Face enters at this juncture, and craves the best services of the philosopher for his friend Abel. The alchymist accordingly promises boundless prosperity, conditionally, of course, upon Abel's following the directions which he is about to give him. Pointing to the plan of his house, which the tobacconist had brought with him, Subtle proceeds:—

"Make me your door, then, south; your broad side, west;
And on the east side of your shop, aloft,
Write Mathlai, Tarmiel, and Baraborat;
Upon the north part, Rael, Velel, Thiel.

* Full moon.

They are the names of those mercurial spirits,
That do fright flies from boxes.
Face. That's a secret, Nab!
Sub. And, on your stall, a puppet, with a vice
And a court-fucus to call city dames:
You shall deal much with minerals.
Drug. Sir, I have
At home, already ———
Sub. Ay, I know you have arsenic,
Vitriol, sal-tartar, argoile, alkali,
Cinoper: I know all. This fellow, captain,
Will come, in time, to be a great distiller,
And give a say—I will not say directly,
But very fair—at the philosopher's stone.
Face. Why, how now, Abel! Is this true?
Drug. Good captain,
What must I give? [*Aside to* FACE.
Face. Nay, I'll not counsel thee,
Thou hear'st what wealth (he says, spend what thou can'st,)
Thou'rt like to come to.
Drug. I would gi' him a crown.
Face. A crown! and toward such a fortune? heart,
Thou shalt rather gi' him thy shop. No gold about thee?
Drug. Yes, I have a portague I've kept this half year.
Face. Out on thee, Nab! 'Slight, there was such an offer—
Shalt keep't no longer, I'll giv't him for thee. Doctor,
Nab prays your worship to drink this, and swears
He will appear more grateful, as your skill
Does raise him in the world.
Drug I would entreat
Another favour of his worship.
Face. What is't, Nab?
Drug. But to look over, sir, my almanack,
And cross out my ill days, that I may neither
Bargain, nor trust upon them.
Face. That he shall, Nab;
Leave it, it shall be done 'gainst afternoon.
Sub. And a direction for his shelves.
Face. Now, Nab,
Art thou well pleased, Nab?
Drug. 'Thank, sir, both your worships." [*Exit.*

Cataline followed in 1611, but its long speeches, translated from Cicero and Sallust, though they showed its author's learning, prevented its popularity. After the production of a couple of third-rate plays, he was appointed poet-laureate in 1619, and received an annual salary of £100, and a tierce of Spanish wine. He subsequently brought out *The New Inn*, *The Magnetic Lady*, and *The Tale of a Tub*—the last of his dramas which was represented. Several of his other works have perished, but those which have come down to us place him in the first rank of English dramatists—second only to Shakspeare himself. His closing days, in the reign of Charles, were clouded by many embarrassments, which the generosity of James had prevented. In the last scene of his life he is said to have expressed much contrition for his profanation of the sacred name in many of his plays—a sorrow which it is the duty of Christian charity to hope was not in vain. He died on the 6th of August, 1637, and three days afterwards was buried in Westminster Abbey, where so many of the sons of genius are silently slumbering. A monument was to have been raised to his memory, but the troubles of the times immediately following his death prevented it. A plain stone covers his grave, with the simple inscription—*O rare Ben Jonson!*



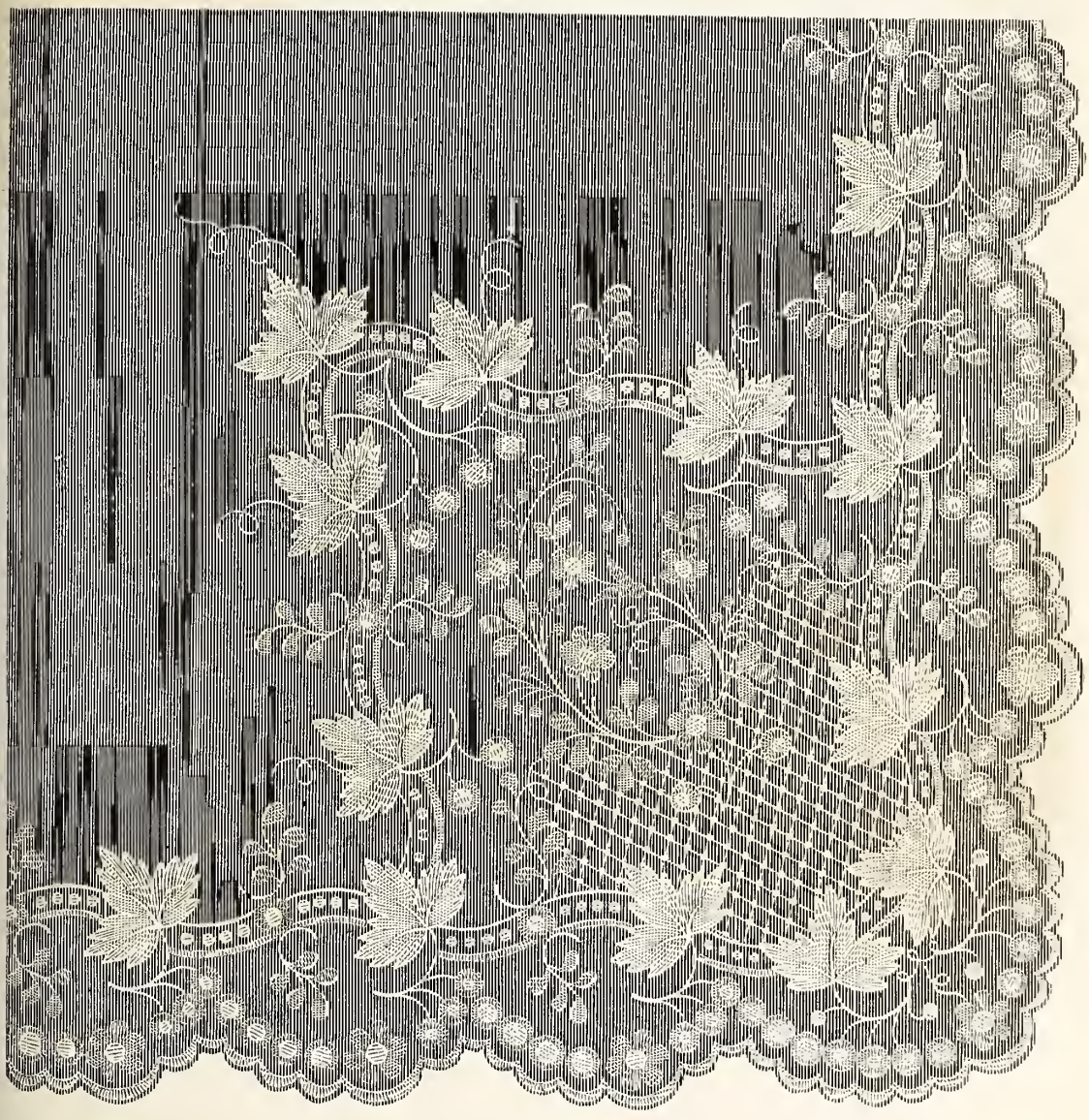
SCENE FROM BEN JONSON'S "ALCHYMIST."

THE LADIES' DEPARTMENT.

EMBROIDERED HANDKERCHIEFS.

The beautiful handkerchief corners, of which we give engravings, are drawn the full size for working; the materials being a square of French cambric, and white and ingrain red embroidery cotton.

The entire border is to be marked on the handkerchief, with stone-blue, or indigo-blue, in the way described in our instructions in embroidery (see Illustrated Exhibitor, page 48). The outlines are then to be traced, and all the points of the leaves and other parts very accurately formed. In working the design the scarlet and white are to be intermingled; the parts of the



EMBROIDERED HANDKERCHIEF.

ngraving which are darkest should be done in red embroidery, nd the scallops in the same; or a part of each scallop may be one in white, and the other part in red.

The direction of the engraved lines in the leaves and other arts, shows the direction in which the stitches must be aken. The greatest care is requisite, to preserve a smooth even utline to every part, as on that depends much of the beauty of ie work. The surface of the raised parts, also, must be smooth id *satin*-like—hence the name of this style of work—*satin-itch*. The spots are to be raised in the centre, in proportion to their size. The small ones seen within the two waving lines which form the edge, may be worked either in raised stitch or in eyelet holes.

Handkerchiefs worked in colours are suitable only for morning toilette and out-door fêtes; they are embroidered in white, only, for evening wear.

POINT LACE COLLAR.

Materials.—Point lace cottons and Mecklenburgh thread No. 1. A piece of coloured paper, and a bit of alpaca.

The section given of this collar is of the full dimensions, and from it a perfect one is to be drawn, the design being traced as already described in the instructions for point lace (see Illustrated Exhibitor, page 252). The colour on which it s most pleasant to work is pale green or blue. It is to be lined with alpaca *tacked*, not pasted on.

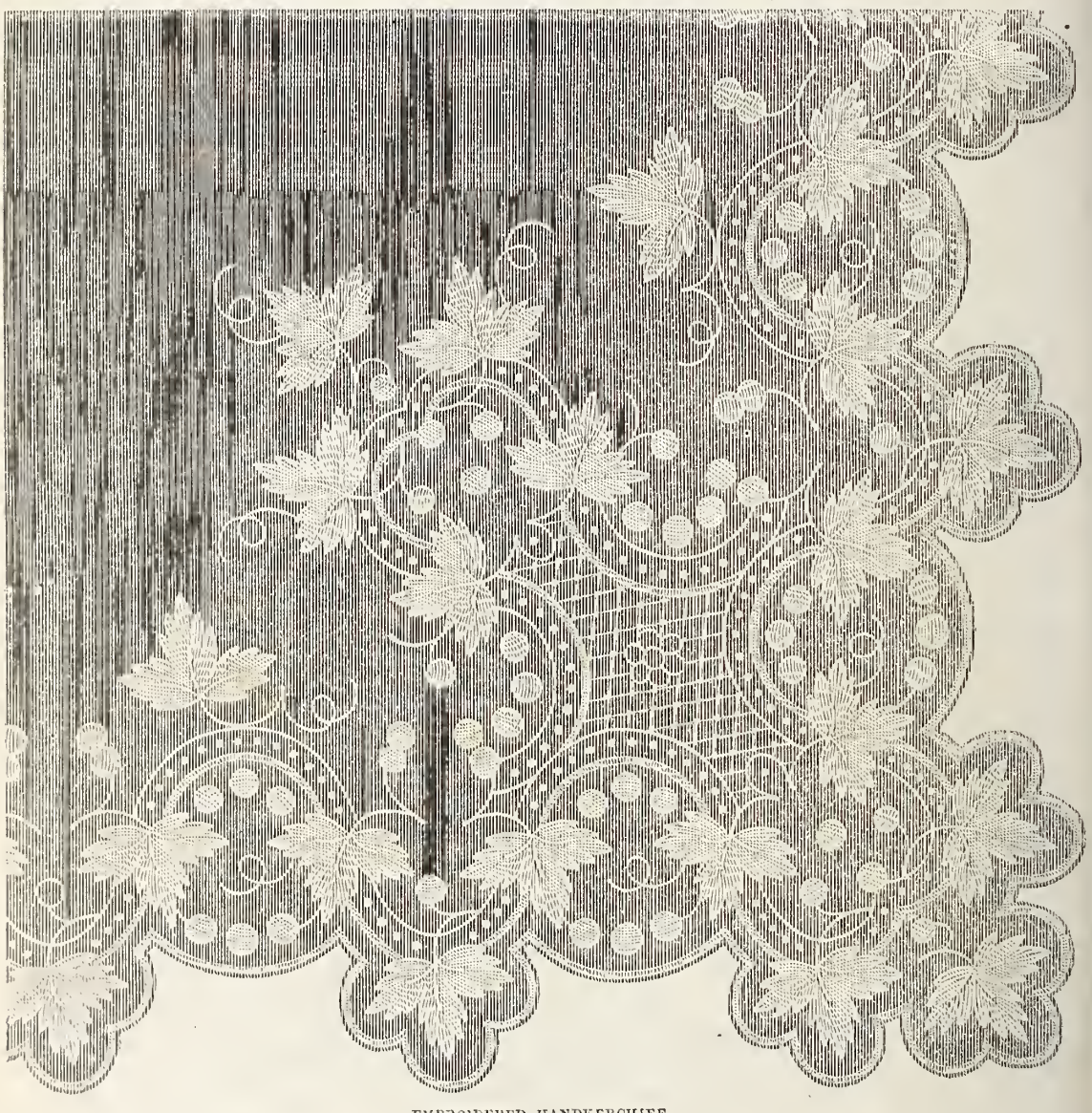
Each little sprig is complete in itself, and must be perfectly outlined, the ends of the thread being laid on, so that they may be worked in. The scallops (*a*), at the edge, are button-holed over with Mecklenburgh 100, and finished with a Sorrento edge,

worked in the same material. The stem of the spray (*b*) is filled in with Brussels lace, in sewing cotton No. 70. The leaves (*c*) are filled in with Valenciennes lace, darned in sewing cotton, No. 150.

The flowers (*d*) have the petals filled in with English lace, and a single spot of the same in the centre. This may be done in sewing cotton No. 90 (*e*). The petals of these flowers are filled with English bars, radiated from the centre, and the finest Mecklenburgh thread should be used for them. These flowers have also a small spot in the centre. The buds (*f*) are all filled with small rosettes, done in cotton No. 90. The entire grounding of the collar is done in bars of button-hole stitch, in Mecklenburgh thread No. 120.

The inner line, forming the neck, is done in a new stitch, which we term braiding stitch. Four threads are laid on in two lines, parallel with each other, and nearly close together. They are then formed into a braid by darning backwards and forwards, always slipping the needle under two threads from the centre. The stitches are taken as close together as possible.

We shall shortly give our readers a design for a chemisette, to correspond with this collar, the illustration of which will appear in our next article on needlework.



EMBROIDERED HANDKERCHIEF.

STATISTICS OF THE FLAX MANUFACTURE OF GREAT BRITAIN.

The flax used in the linen manufactures of this country is supplied partly from our own cultivation and partly from abroad. The quantity annually raised in this country it is difficult to ascertain with correctness. Of the 1,806,673 cwts. of foreign flax imported in 1849, (the date of the last classified official account), 1,352,275 cwts. were imported from Russia; 180,747 cwts. from Prussia; 113,785 cwts. from Holland; 75,769 cwts. from Belgium; 50,940 cwts. from Egypt; 25,455 cwts. from Germany; 2,854 cwts. from Denmark; and the remainder from various sources. In 1852, the total quantity imported was 1,194,184 cwts., a considerable decline on the imports of 1850, which amounted to 1,822,918 cwts.

In the spinning of this flax into thread, and weaving the thread into linen, there were employed in 393 factories, 68,43 people (20,817 males, and 47,617 females) of whom 807 were boy and 774 girls under 13 years of age; 8,012 were males betwee 13 and 18 years of age; 46,843 females above 13 years of age and 11,998 males above 18 years of age. The number o spindles employed in spinning the thread was 965,031, and o power looms in weaving the linen 1,141; these spindles an power looms being set in motion by 10,905 horse steam-power and 3,387 horse water-power. The distribution of these fla factories is as follows:—

England.—Cumberland, 7; Derbyshire, 1; Devon, 1; Dorset, 17; Durham, 3; Gloucester, 3; Hants, 2; Kent, 1; Lancashire, 9; Middlesex, 5; Northumberland, 1; Shropshire, 1; Somerset, 12; Suffolk, 1; Surrey, 5; Westmoreland, 5; Wiltshire, 1; Yorkshire, 60: total, 135.

Scotland.—Aberdeen, 4; Ayr, 3; Edinburgh, 4; Fife, 43; Forfar, 101; Lanark, 4; Kincardine, 7; Perth, 19; Renfrew, 4: total, 189.

Ireland.—Antrim, 38; Armagh, 4; Donegal, 1; Down, 11; Dublin, 1; Kildare, 2; Louth, 2; Londonderry, 2; Meath, 1; Monaghan, 2; Tyrone, 5: total, 69.

The above return of the number of persons employed in the flax factories, especially in those of Ireland, does not give anything like the number of people employed in the linen and thread manufacture, &c., of the kingdom; if we add the hand-loom weavers and persons engaged in the other domestic branches of the manufacture, the total number will be found to be not far short of 300,000.

The importation of foreign linen manufactures in 1851 was as follows:—Lawns (net French) of the value of £2,386; cambrics and French lawns, 26,213 pieces; damasks and damask diaper, 3,821 square yards; plain linen and diaper, and manufactures unenumerated, not made up, of the value of £26,606; sails and articles wholly or in part made up, of the value of £10,307. Of these there were re-exported plain linens and diapers of the value of £5,180.

The export of British manufactured linen goods, &c., in 1851, was 128,780,362 yards of linens of various kinds; 174,901 yards of thread lace; 2,741,265 lbs. of sewing thread; linen goods of other descriptions of the value of £20,004; and 18,518,273 lbs. of linen yarn; the value of the whole amounting to £5,048,615. The United States of America, the Hanseatic towns, China, the West India islands, the South American states, France, &c., are amongst our best customers for linen goods.

In 1710 Ireland exported 1,688,574 yards of linen: in 1850, 75,000,000 yards. In 1825, for every 1,000 pieces of French cambrie sold in England, 100 pieces of Irish went into consumption. In 1845, for every 1,000 pieces of French, 16,000 pieces of Irish were sold, although in the interval the duty on the admission of foreign cambric was considerably reduced.

In his lecture before the Society of Arts, March 17, Mr. M'Adam, the secretary of the Royal Belfast Flax Improvement Society, stated the quantity of flax annually produced by the principal flax growing countries to be as follows:—Russia, 150,000 tons; France, 25,000 to 30,000 tons; Belgium, 20,000 to 25,000 tons; Holland, 6,000 to 8,000 tons; Austria, 6,500 tons. The quantity of flax grown in England and Scotland appears to be inconsiderable; but in Ireland, Mr. M'Adam stated that it was progressing rapidly, having increased during the last four years from 53,863 to 138,609 acres, which was equivalent to a yield of 34,000 tons of flax fibre. The value of this crop was estimated at £2,000,000. Mr. M'Adam drew the attention of the meeting to this remarkable fact, that this striking increase was effected in the face of a competition with foreign flax admitted duty free.

THE BANKS OF THE THAMES.

The tourist who directs his attention more to the unfrequented parts of a country, and follows the windings of a river, or an upland valley, rather than the beaten track of former travellers, will have but little cause to repent his determination. He enters into perfect sympathy with surrounding nature, and the silent beauties of the country are particularly refreshing after the noise and bustle of a large city; he passes the lonely cottage of the peasant and the proud and lordly palace; half forgotten battlefields or ruined castles are discovered; and the grey, moss-grown tower of some quiet, peaceful country church, or the majestic spire of a cathedral rise up unexpectedly before him. His steps lead him past the busy factory or the solitary farm—through shady woods and deep silent valleys, and he learns to love solitude for the noble thoughts with which it inspires us, and the habitations of man for the reminiscences of the past.

The sources of the Thames gush from the southern slope of the Coltswood hills in Gloucestershire, within five miles of each other; those which form the slender stream called the Churn are most frequently pointed out as the head springs of the Thames; and they rise at the bottom of a narrow gorge, overhung with shadowy trees. An old woman, who formerly acted as guide to those who visited the spot, was the priestess of this fountain. Presenting her visitors with a glass of pure, sparkling water from the spring, she would say, pointing with her finger—"Here are the seven sources of old father Thames; there are all seven; neither the summer's heat nor the winter's frost affects them; they never increase—never are dried up, but flow on for ever."

Flowing from these seven springs, the Churn passes the ancient "Duro-Carnovium," where three Roman roads met, and which is now corrupted into the modern Cirencester. The ruins of a theatre and of several baths, the evidences of its former importance and splendour, have been uncovered during recent excavations, and it is said that in the cabinet of an antiquary is the skull of a Roman matron, "Julia Costa," though under what circumstances this was discovered is not stated; one thing, however, we know to be a fact, viz., that the superstitious peasants who first possessed it extracted the teeth, as charms against the plague. Near to Cirencester rise the copses of Oakley Grove, where in former times Lord Bathurst received Pope, Swift, Addison, Prior, Gay, and afterwards their successor, the inimitable Sterne.

The stream which flows languidly towards Wiltshire, through sedgy banks, passes a little to the left of the small town of Cricklade—or, in the primitive British form, Cerigwlad—a stony country. The Churn soon joins the classic Isis, and receives several other streams, including the Coln. At Lechlade the growing river becomes navigable for boats of seventy tons. From this point, although the banks are flat, the chains of hills running parallel with the river, draw nearer to it. The little hamlet of Buscott, on the Berkshire side, is a charming specimen of a pleasant, cheerful English village; its little inn peeps from among its flowers and bright-leaved creepers; its rustic church rises from a mass of green trees; the sparkling, sunny water glides, murmuring and "lapping," under the old weather-beaten mill wheels, and like all English villages, has its old hall, and wealthy farms with green pastures and waving cornfields, and pleasant cottages with troops of rosy country children playing round the threshold.

Farther on we find Radcotbridge, where, in 1387, the weak Robert de Vere, the favourite of Richard II., abandoned the army which was under his command, and, as Froissart states, "threw on the river bank his gauntlet, his helmet, the armour which he was unworthy to bear, and swam across the river, flying from the sword of Bolingbroke, afterwards king of England under the title of Henry IV., without having struck a single blow."

Beyond Farringdon we perceive, in the distance, a range of chalk hills. On the slope the gigantic figure of a horse has been cut in the green turf, showing underneath the white chalk. Once each year the country people unite to remove the grass and plants from this space, which otherwise would soon become as green as the surrounding hill sides. This remarkable custom appears to have been handed down from 871, when Alfred the Great defeated the Danes at this spot. A white horse was represented on their standard. The pleasant valley which lies below this hill is called the Valley of the White Horse.

At the confluence of the Cherwell, and where the Isis spreads itself out like a lake of liquid silver, is Oxford, with its square towers and pointed spires, casting the influence of its University over the surrounding country. Its library contains upwards of five hundred thousand volumes, and its spacious colleges and halls can contain five thousand students. In the great amphitheatre, which is able to accommodate three thousand spectators, the emperor Alexander, the king of Prussia, Metternich, Liéven, and Blücher, were received, in 1814, with all honour as *doctors of civil law!*

Below Oxford the river flows slowly through picturesque and well-wooded country; its waters are cut by boats of every kind, and heavy barges are slowly dragged up stream by their straining teams. The towers and domes of Oxford are long seen rising above the elms which line the banks. In the north lie the Blenheim woods; at the east the Chiltern hills, where it is said that a more ignorant, most uncivilised, and most brutish population is to be found than in any other part of England. Lastly, the eye is attracted by the slender spire of Abingdon, once the

capital of the Mercian kings, afterwards the residence of the powerful Benedictine abbots, but now a small, quiet, dull town, where the manufacture of sailcloth is carried on.

The church of Clifton looks down upon the river from the summit of an abrupt rock; its picturesque appearance, and the pleasant situation of Dayslock, forming an agreeable contrast to the uniformity of the surrounding country. Lower down the stream we reach Dorcester, the Caic Dauri, or city of the waters, of the ancient Britons, from the fact that it is here that the Thame mingles its waters and its name with those of the Isis. The town itself has decreased in importance since the Saxon times, but a memorial of its former grandeur remains in the stained glass of its noble basilica.

The Thames now flows gently under the bridges of Shillingford and Wallingford; the towns and villages increase in number; almost facing Northstoke is Cholsey, where the remains of an extensive monastery are to be seen, founded in 986, by Ethelred to expiate the murder of his brother, Edward the Martyr. Below the tower of the ancient Benedictine convent at Goring, and near the mill at Clive, the river spreads itself out to enclose in its silver waters a lovely group of islands. The country becomes more lovely at every step; a curious wooden bridge at Pangbourne is a favourite resort of anglers. Somewhat further down, the river pierces the chain of hills, and then turns to the right towards the thick woods of Harwick Hall. A mile lower down it passes Maple Durham, also of the time of the Tudors, with its long avenue, its stretching wings, its pointed gables, and its twisted and quaint chimneys against a back-ground of dark firs and towering poplars. It was among the woods of Purley that Law retired after the failure of his financial schemes.

At length we reach the junction of the Kennet and the Thames at Reading, where the Romans founded a colony of the Atrebati, a Gallic tribe from the neighbourhood of Arras: it now contains about nineteen or twenty thousand inhabitants. The bridge at Caversham is a most strange and deformed structure, but exceedingly picturesque; the two counties which it connects are said each to have built its half of the bridge without reference to the other. The Oxfordshire end is of stone and brick; that on the Reading side a skeleton of iron and wood.

As we leave Reading, the straight lines and embankment of the railway which defaced the landscape are left behind; meadows again stretch around us, and the pleasant village of Sonning, with its old church spire and its flowering shrubberies stands side by side with the stately trees of Holme Park. The river which had separated above the bridge to embrace two or three islands, now receives, near Striplake, the Loddon. Then passing the old and irregular houses of Wargrave, we come to Park Place, built by the duke of Hamilton, and inhabited at different times by George III. and George IV.; it stretches its green mounds, and copses, and fresh flowers over a considerable extent; and the grounds are filled with grottos, with ruins of every age, and a druidical temple was even transported at great expense from the island of Jersey.

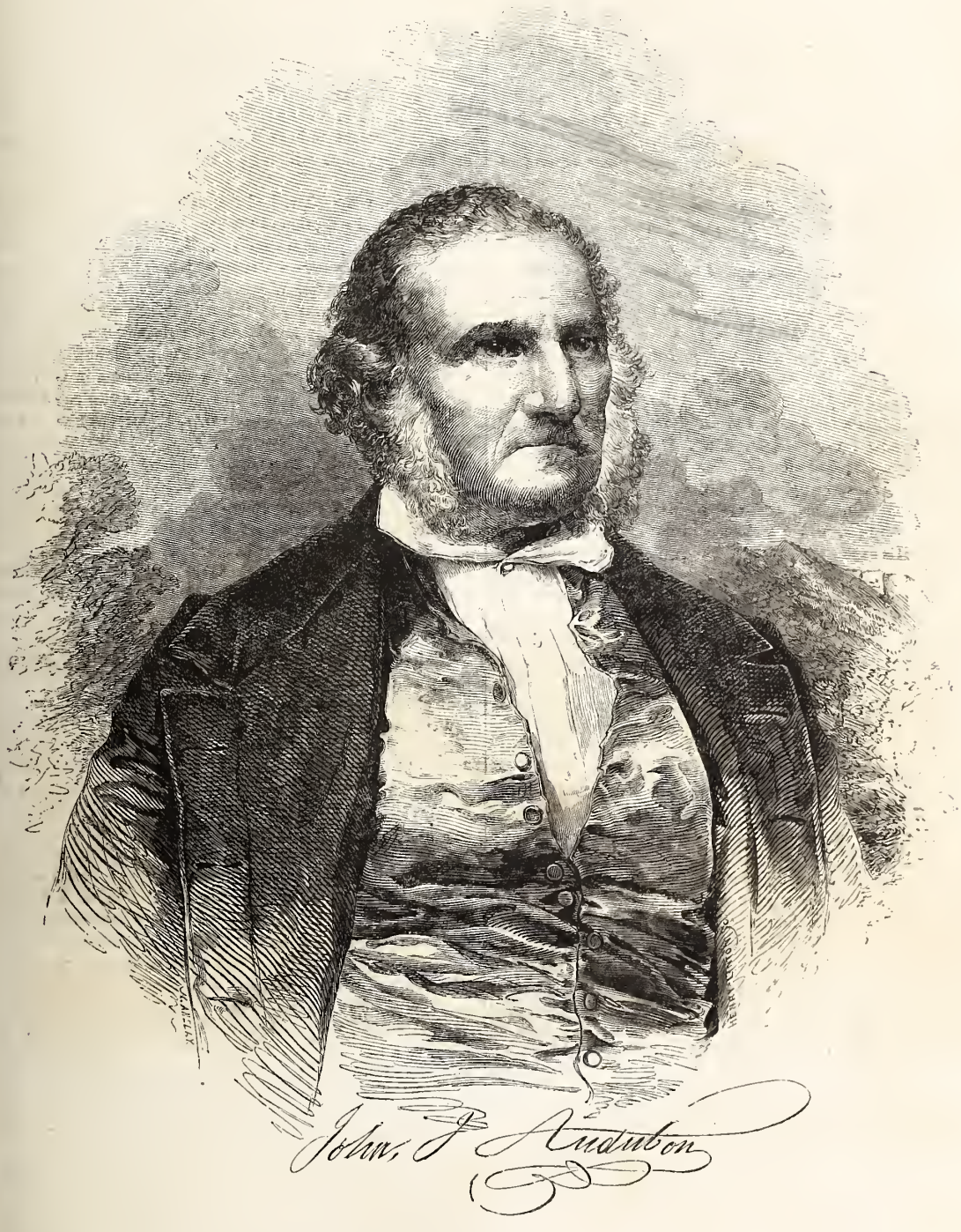


COOKHAM, ON THE BANKS OF THE THAMES. FROM A PAINTING BY DODSON. ENGRAVED BY H. LINTON.

Surrounded by a girdle of hills covered with beech trees, we next see Henley-on-Thames, one of the most ancient towns of this part of the county—as indeed its name shows, being the two British words, *hen*, old, and *ley*, place. The present houses, however, are all modern, excepting the church, which dates from the fourteenth or fifteenth century, and which contains among others the ashes of the celebrated Dumouriez, who died in this neighbourhood in 1828.

After the hamlet of Danesfield, where the traces of a Danish encampment are still plainly visible, we pass the splendid woods and the grey tower of Bisham; gliding under Marlow bridge, we see before us the pleasant village of Cookham, on the Berkshire side, rising from a small wooded eminence, while to the left the hills of Buckinghamshire gradually stretch away into the distance.

JOHN JAMES AUDUBON, THE AMERICAN NATURALIST.



THE sublime scenery and luxuriant vegetation of North America ot only delight the tourist, but seem to make a love of nature acy of the soil. We can hardly wonder, then, that one of the reatest, if not *the* greatest naturalist the world has ever seen, ould have arisen in the midst of that vast continent.

John James Audubon was born in Louisiana about the year 1782. le was of French descent, and gave early manifestations of his ste for natural history. Birds, above all, exercised a sort of fas- nation over him. No amusements or pleasures that his family or iends could offer possessed half the attraction for him that was to be found in roaming in the woods and listening to the song of the warblers. His father took him with him frequently when making excursions to distant parts of the state, and was always careful to direct his attention to rare flowers and beautiful birds, pointing out to him the variegated plumage of the latter, and speaking to him of their instincts, their mode of life, migrations and pleasures, and changes of colour at various periods of the year.

The child was delighted, and the tastes thus encouraged grew with his growth, and strengthened with his strength. He has

recounted in glowing terms the delightful impressions which these rambles of his infancy made upon him. The desire to preserve the beautiful appearance thus presented to him, which from their very nature were fleeting and evanescent, was early awakened, and led him to apply himself to learn drawing. This was at first but a boyish fancy, but it soon became a passion. Though many of his sketches were of course at first little better than caricatures, the very imperfections of the copy led him to admire the original the more, and encouraged him to persevere in his efforts. When he was fifteen years of age he was sent to Paris to complete his education; and while there he received lessons during two years from the celebrated David, commencing with the study of the human figure. While at Nantes he formed an acquaintance with a young Frenchman, with whom he entered into partnership with the intention of carrying on business in America. A very characteristic anecdote is related of the way in which they employed themselves previous to their departure. Whilst his friend was busy in filing accounts, making out bills of lading, invoices, &c., Audubon occupied himself in cleaning his gun, and providing a plentiful supply of paper and crayons. It may be readily imagined that where there was so little community of sentiment, a community of property and pursuits could not last long; so that the partnership was soon dissolved.

Upon his return to America he was eighteen years of age, and his father gave him a farm near Philadelphia, where the Perkioming Creek falls into the Schuylkil. Here Audubon, freed from the irksome cares of the counting-house, gave himself up entirely to his favourite employment—roaming through the woods in the neighbourhood, and the vast plains and hills, crowned with eternal verdure, which offered multitudinous subjects for his pencil. His excursions, he tells us, invariably commenced at dawn; and to return in the evening wet with dew, and carrying a feathered prize, formed one of the sweetest pleasures of his life.

It might be readily supposed that one who sought happiness only in the pathless woods, and thought the songs of the wild birds the finest of music, could have but little taste for domestic pleasures, and but little inclination to tangle himself in the silken cords of love. And yet, here was another proof of the thousands that have appeared since the world began, and will continue to present themselves till it ends, that no pursuits or pleasures, toils, or ambition, or triumphs, can make the heart of man cast off its allegiance to the gentler sex. Audubon married early. "Nature," says he, "which had inclined my heart towards the birds and flowers, had not rendered it insensible to softer influences. It is enough for me to add that the object of my affections has now for a good while past given me the name of her husband." This, however, is the only allusion to his marriage.

Immediately after his marriage he went to live at Louisville, in Kentucky, below the rapids of the Ohio. He remained here two years, occupied in his favourite studies. He sketched all the birds he could meet with, and took notes. His fame spreading, a great many sportsmen in the neighbourhood shot specimens, both birds and quadrupeds, and sent them to him, so that his collection increased daily; and he had at last more than two hundred drawings of various animals. He was thus engaged in March 1810, when Wilson, the celebrated author of the "American Ornithology," one morning entered the counting-house in which Audubon spent his time in sketching and his partner in keeping their books. He gave evident signs of astonishment when he saw the way in which the former was engaged; but he, nevertheless, walked forward to the table at which he sat, and stated without hesitation the object of his visit, which was to induce him to become a subscriber to his work, and favour him with his patronage. Audubon was surprised and delighted with the engravings, and after turning over the leaves of the portfolio, was about to add his name to the list, when his partner said abruptly—"*Mais mon cher Audubon, qui vous pousse à souscrire? Vos dessins sont meilleurs que ceux-là, et vous devez mieux connaître que ce quidam les mœurs et l'histoire des oiseaux d'Amérique*"—"My dear Audubon, what induces you to subscribe? Your drawings are better than those, and you surely know more about the habits and history of the American birds than this fellow." Whether Wilson understood French or not, is not known; but he evidently saw what was meant, for he instantly lost his cheerfulness, and became silent and reserved. Audubon, however, did all he could to soothe him. He lent him some of his drawings, and went for a day's shooting with him in the neighbourhood. Wilson lodged in the house, a part of which was occupied by Audubon and his family, and every evening he was heard playing Scotch airs on his flute alone in his room. The American was touched by his lonely situation, introduced him to his wife and many of his friends, and gave him a list of American birds written out with his own hand; but all was not sufficient to heal Wilson's wounded pride: and he states in his diary, that "literature and art had no friend in the place."

Audubon, years after, had reason to regret, and doubtless did regret, his cool reception of the poor Scotchman, when he himself was wandering, portfolio and subscription list in hand, and seeking the same patronage and support which he had then denied.

A few months after Wilson's departure, Audubon moved farther up the Ohio, nearer to the wild forests of the far west. He fixed his residence at Henderson, a village which then contained only six or eight houses. One of them, which however was only a very small log hut, was luckily empty; and in this, with his young wife and infant son, he took up his abode. All around was a dense forest, no market near, and nothing to be had for money; but the neighbours were kind, and brought them plenty of flour and smoked hams, and did whatever else was in their power to make them comfortable. A happier couple than he and his wife at this time never existed—no care or misgiving ever troubled them. They roamed together in the woods, he with his gun on his shoulder, and often leading his child by the hand, or carrying him in his arms. Business was now totally neglected, and the livelong day passed in shooting and fishing. He made a retreat on the top of his house for the swallows and martinets, to serve them at the period of immigration.

He had now for nearly twenty years submitted impatiently to the drudgeries of commerce, but he was unable any longer to control his inclination; and he therefore, in spite of the prayers and entreaties of his family and friends, resolved upon bidding adieu for a season to the delights of home, and completely abandoning himself to a nomade life in the forests. He set out with a valise on his back, containing his diary, his colours, and his brushes and pencils, and a small supply of linen, which he made use of when required to furbish his fowling-piece, and plunged into the prairies. Not only has he painted and described the numerous species of birds which inhabit the vast continent which extends from Mexico to Labrador, but in five thick volumes he has given lively and picturesque sketches of the strange characters and the strange incidents which he encountered on the way, and graphic descriptions of the sublime scenery which every where astonishes and delights the tourist in the far west. He slept by night at the foot of a tree, killed game and cooked it for his subsistence, and floated down hundreds of miles along mighty rivers in a frail canoe, sketching as he went—everywhere braving fatigue and disappointment with dauntless courage. But he had as yet no idea of publishing his work. All this labour was undergone under the influence of pure enthusiasm.

It was only in April, 1824, that having met with the celebrated ornithologist, Charles Lucien Bonaparte, at Philadelphia, and having been presented by him to the Natural History Society of that town, that he first experienced the desire of fame. His drawings were greatly admired in Philadelphia and New York; but he did not remain long to enjoy the praise which they elicited. He started thence to visit the great lakes of the north; and it was in the silence and desolation of the vast forests on their shores that he first thought of giving the result of his labours to the world. "Happy days! happy nights!" he exclaims in his journal, when, revelling in dreams of future glory by the light of his lonely watch-fire, he ran through his collection, asking himself proudly, how would one man, without assistance, without reputation, without literary or scientific connexions, be able to carry out a plan so vast and extensive, publish immense drawings, in which not only each bird shou

be reproduced as large as life, but every part of the bird,—beak, feet, legs, talons, all laid down by the aid of the compass with mathematical accuracy? Flowers, plants, insects, reptiles, fishes, had all been faithfully copied from nature in every particular. Difference in form or size had led him in the beginning to divide his collection into three classes; but he now made a further division into books of five plates each, and advancing still farther westward, determined to leave nothing wanting to the success of his work, which time, perseverance, and labour could accomplish.

Eighteen months afterwards he returned to his family, who were now in Louisiana; and after having explored the forests in that neighbourhood, and in vain endeavoured to procure subscribers in the chief towns of the Union, or induce the American artists to undertake the engraving of his designs, he determined with a heavy heart to try his fortune in Europe. He therefore embarked for England in May, 1826.

His first impressions of England were anything but agreeable. He had numerous letters of introduction, but still considering every European far superior to the Americans in matters relating to literature and art, he looked upon himself as lost in the crowd; and he states that as he traversed the streets of Liverpool, without meeting with one friendly glance, his heart sank within him. But on presenting his letters of introduction, his prospects began to brighten. His drawings were exhibited to the public, and loudly praised in the newspapers. He was received with great favour and eclat in Manchester and other great towns. In Edinburgh his reception was enthusiastic. Upon going there, he put his drawings into the hands of the engraver, although he had not as yet one subscriber. On leaving the northern Athens he had obtained the names of sixty-five of its aristocracy, thus enabling him to count upon £16,000 for a work which had only just been commenced.

All now went on prosperously. After a tour through England and Scotland he paid a visit to Paris in 1828, where he was received with open arms by the scientific world. Cuvier said that his work was the most gigantic and most magnificent monument that had ever been erected to nature." The ensuing winter was passed in London, and in April, 1829, he returned to America to explore anew the woods of the middle and southern states. Accompanied by his wife, he left New Orleans on the 8th of January, 1830, for New York; and on the 25th of April, just a year from the time of his departure, he was again in the great metropolis. Before the close of 1830 he had issued his first volume, containing one hundred plates, representing ninety-nine species of birds, every figure of the size and colours of life. The applause with which it was received was enthusiastic and universal. The kings of England and France had placed their names at the head of his subscription list; he was made a fellow of the Royal Societies of London and Edinburgh; a member of the Natural History Society of Paris, and other celebrated institutions.

On the 1st of August, 1831, Audubon arrived once more in New York, and having passed a few days with his friends there and in Philadelphia, proceeded to Washington, where the president and other principal officers of the government gave him letters of assistance and protection to be used all along the coast and inland frontiers where there were collectors of revenue or military or naval forces. He had previously received similar letters from the king's ministers to the authorities of the British colonies.

Proceeding at length upon his mission, he explored the forests of Maine and New Brunswick, and the shores of the bay of Fundy, and chartering a vessel at Eastport, sailed for the gulf of St. Lawrence, the Magdalen Islands, and the coast of Labrador. Returning as the cold season approached, he visited Newfoundland and Nova Scotia, and, rejoining his family, proceeded to Charleston, where he spent the winter; and in the spring, after nearly three years' travel and research, sailed a third time for England.

The second volume of "The Birds of America" was finished in 1834, and in December of that year he published in Edinburgh the second volume of the "Ornithological Biography." Soon after, while he was in London, a nobleman called upon him, with his family, and on examining some of his original drawings, and being told that it would still require eight years to complete the work, subscribed for it, saying, "I may not see it finished, but my children will." The words made a deep impression on Audubon. "The solemnity of his manner I could not forget for several days," he writes in the introduction to his third volume; "I often thought that neither might I see the work completed, but at length exclaimed, 'My sons may;' and now that another volume, both of my illustrations and of my biographies, is finished, my trust in Providence is augmented, and I cannot but hope that myself and my family together may be permitted to see the completion of my labours." When this was written, ten years had elapsed since the publication of his first plate. In the next three years, among other excursions, he made one to the western coast of the Floridas, and to Texas, in a vessel placed at his disposal by government; and at the end of this time appeared the fourth and concluding volume of his engravings, and the fifth of his descriptions. The whole comprised four hundred and thirty-five plates, containing one thousand and sixty-five figures, from the bird of Washington to the humming-bird, of the size of life, and a great variety of land and marine views, and floral and other productions, of different climates and seasons, all carefully drawn and coloured after nature. Well might the great naturalist felicitate himself upon the completion of his gigantic task. He had spent nearly half a century "amid the tall grass of the far-extended prairies of the west, in the solemn forests of the north, on the heights of the midland mountains, by the shores of the boundless ocean, and on the bosoms of our vast bays, lakes, and rivers, searching for things hidden since the creation of this wondrous world from all but the Indian who has roamed in the gorgeous but melancholy wilderness." And, speaking from the depth of his heart, he says, "Once more surrounded by all the members of my dear family, enjoying the countenance of numerous friends who have never deserted me, and possessing a competent share of all that can render life agreeable, I look up with gratitude to the Supreme Being, and feel that I am happy."

In 1839, having returned for the last time to his native country, and established himself with his family near the city of New York, Audubon commenced the publication of "The Birds of America" in imperial octavo volumes, of which the seventh and last was issued in the summer of 1844. The plates in this edition, reduced from his larger illustrations, were engraved and coloured in the most admirable manner by Mr. Bowen, of Philadelphia, under the direction of the author.

Audubon was too sincere a worshipper of nature to be content with inglorious repose, even after having accomplished in action more than was ever dreamed of by any other naturalist; and while the "edition for the people" of his "Birds of America" was in course of publication, he was busy amid the forests and prairies, the reedy swamps of the southern shores of America, the cliffs that protect the eastern coasts, by the currents of the Mexican Gulf, and the tide-streams of the Bay of Fundy, with his sons, Victor Gifford and John Woodhouse, making the drawings and writing the biographies of "The Quadrupeds of America," a work in no respect inferior to that on birds.

Audubon's highest claim to admiration is founded upon his drawings in natural history, in which he has exhibited a perfection never before attempted. But he has also indisputable claims to a respectable rank as a man of letters. Some of his written pictures of birds, so graceful, clearly defined, and brilliantly coloured, are scarcely inferior to the productions of his pencil. His powers of general description are also remarkable. The waters seem to dance to his words as to music, and the lights and shades of his landscapes show the practised hand of a master. The evanescent shades of manners also, upon the extreme frontiers, where the footprints of civilisation have hardly crushed the green leaves, have been sketched with graphic fidelity in his journals.

After his many travels, Audubon died peaceably at his residence in New York, on January 27, 1851. He had arrived at a ripe old age. Two sons survive to deplore his loss, and to prosecute the science in which the father won such fame.

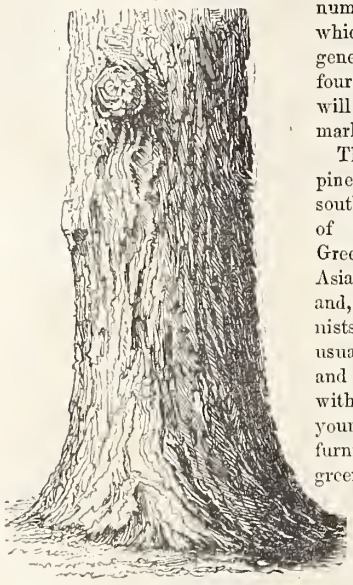
THE FIR.

The fir tree, which belongs to the genus *Pinus*, was well known to the ancients, and has been described and celebrated by their philosophers and poets. Pliny, in his Natural History, minutely describes six species of it; and Virgil refers to it in his account of the wooden horse used by the Greeks at the siege of Troy.

> "A huge horse made, hye raised like a hill,
> By the diuine science of Minerua;
> Of clouen *firr* compacted were his ribs."
> (*Surrey's Translation.*)

It is referred to, likewise, in several places by Horace, Ovid, Statius, and Catullus. The numerous varieties of the tree which compose the genus are generally embraced within fourteen species, of which we will mention the most remarkable.

Fig 1.



The *Pinus pinaster*, or wild pine, is indigenous to the south of Europe, both shores of the Mediterranean, to Greece, the western parts of Asia, Himalaya mountains, and, according to some botanists, even to China. It usually attains a great height, and has a straight fair stem, with a rough bark. When young, its branches are thickly furnished with leaves of a sea-green colour, which give to the tree a very pleasing appearance. Its cones, which are thick, roundish, and hard, are covered with flat scales arranged with beautiful regularity and precision. The most remarkable fact in the history of this tree is the great use which has been made of it in France in covering immense districts of barren sand. One of these plantations (which are called pignadas) lies between Bordeaux and Bayonne, and constitutes the principal source of wealth to the inhabitants of the district, who are almost entirely supported by the preparation of resin and tar from fir trees of this species.

The *Pinus pinea*, or stove pine, which is a tall evergreen tree, is a native of the south of Europe and the north of Africa. It prefers a sandy loam, but will grow readily in almost any description of soil. Its kernels are eatable, and are even preferred by some to almonds. Its cones are ovate obtuse, and nearly equal in length to the leaves.

The *Pinus sylvestris*, commonly called the Scotch fir. This tree is very common throughout Scotland, but is also found in most other countries of Europe. It grows indifferently in th temperate, frigid, and torrid zones. Its wood, which is red or yellow deal, is the most durable of any of the fir tribe yet known. Mr. Loudon, in his *Arboretum Britannicum*, mentions some instances in which this kind of tree has attained a very large size. At Dalmeny Park, near Edinburgh, there is one sixty feet in height, of which the trunk is three feet in diameter, and the head, or body of the tree, thirty-six feet. He mentions another at Cypress Grove, near Dublin, whose height is seventy-five feet, and the diameters of its trunk and head three feet six inches and fifty feet respectively. At Charleville, in King's county, is a third, of still greater dimensions In favourable situations, however, it frequently attains a height of from eighty to one hundred feet, the trunk varying in diameter from two to four feet. Its head is somewhat conical or rounded, but, as compared with th heads of broad-leaved trees, it is generally narrow in proportion to its height. The trunk, which grows almost perpendicularly is covered with a thick, rough bark, as seen in the engravin

Fig.



Fig. 2.



(fig. 1). The knarled and irregularly clothed appearance of its branches is well shown in woodcut (fig 2), which represents a section of the tree with the branches and foliage as they usually appear. The delicate, needle-like form of the small leaves is shown on a large scale in woodcut (fig. 3), which represents a small branch of this species of fir with the cone and bloom attached. Trunk, branches, and foliage, however, have a dark, murky hue, which gives to the tree anything but a pleasing appearance.

Mason somewhere says of it:—

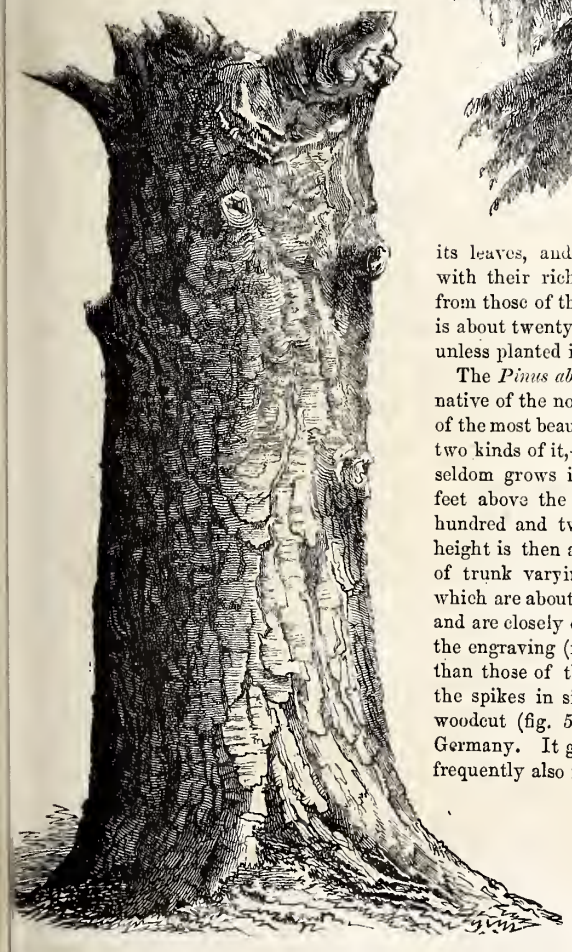
———"The Scottish fir in murky file,
Rears his inglorious head, and blots the
fair horizon."

Wordsworth, too:—

"Unheeded night has overcome the vale:
On the dark earth the baffled vision fails:
The latest lingerer of the forest train,
The lone black fir, forsakes the faded plain."

The *Pinus picea*, or yew-leaved fir, is a tall evergreen tree and a native of the mountains of Siberia, Germany, and Switzerland. Its leaves are solitary, flat, and somewhat two-ranked; the cones are cylindrical, erect, and thickly covered with long pointed scales. A curious fact in connexion with this tree is mentioned by Gmelin, who asserts that forests of it are

Fig. 7.



onsidered by the tribes of wandering Tartars as sure indications f good springs and pasture ground, as it grows best in moist rich il, an obstacle, by the way, to its being much planted in ngland. This species includes the silver fir and the balm of Gilead fir. The former of these is a noble, upright tree, which will grow in any soil or situation, though it attains its largest size in rich loamy earth. The balm of Gilead fir is perhaps the most valued of the whole genus, for the great fragrance of

Fig. 8.



its leaves, and the extreme beauty of its branches, which are thickly covered with their rich balmy foliage. Its cones differ but slightly in colour and shape from those of the silver fir. The average period of its age is about twenty years; nor will it reach even that limit, unless planted in a deep rich soil.

Fig. 4.



The *Pinus abies*, or spruce-fir. This tree, which is a native of the northern parts of Europe and of Asia, is one of the most beautiful and lofty of European firs. There are two kinds of it,—the white fir and the red fir. The former seldom grows in a situation of less than three hundred feet above the level of the sea, and requires about one hundred and twenty years to attain its full size. Its height is then about one hundred feet, with a diameter of trunk varying from three to four feet. The cones, which are about six inches long, are cylindrical and erect, and are closely covered with flat, prickly scales, as seen in the engraving (fig. 4). The leaves are broader and thicker than those of the other species, and are arranged round the spikes in single and double rows, as shown in the woodcut (fig. 5). The red fir abounds in the north of Germany. It grows singly in mountainous districts, but frequently also in large forests. Its shape is conical, and its leaves, which are of a dark green colour, are four-cornered and prickly. Its cones, as seen in the engraving (fig. 6), are cylindrical and cased in flat blunt scales.

The average age of this tree, as also of the white fir, is about four hundred years. The greatest height which it usually attains is one hundred and eighty feet, with a proportionate thickness of trunk. Its rind is, of a reddish-brown colour, and in old trees becomes

cracked and scaly, as seen in woodcut (fig. 7). The illustration (fig. 8), which represents a section of the trunk with

Fig. 3.



its branches and foliage, gives an accurate idea of the general appearance of this very handsome tree. The balm, or hemlock

Fig. 5.



fir of North America is, by some botanists, considered a member of this species.

We reserve a brief description of the other principal species of the fir for a future number.

THE DAISY.

'Tis Flora's page; in every place,
In every season, fresh and fair,
It opens with perennial grace,
And blos-oms everywhere.

On waste and woodland, rock and plain,
Its humble buds unheeded rise;
The rose has but a summer's reign,
The daisy never dies.

MONTGOMERY.

THE ELECTRICAL EEL.

The governor of New Amsterdam had a large electrical eel, which he kept for several years in a tub made for that purpose, and placed under a small shed near to his house. Two sailors, wholly unacquainted with its properties, were, one day, told to fetch an eel which was lying in a tub, and to give it the cook to dress for dinner. No sooner had they reached the shed than one of them plunged his hand to the bottom of the tub to seize the eel, when he received a blow which benumbed his whole arm; and without knowing how this could be, he started from the tub, shaking his fingers, and holding his elbow with the hand of his other arm, cried out, "I say, Jack, what a thump he has fetched me with his tail!"

His messmate, laughing at "such a foolish notion" as a violent blow from the tail of an eel, next put down his hand to capture the animal, but he, receiving a similar shock, also snapped his fingers, and ran out exclaiming, "Why, he did give you a thump! He's a fighting fellow: he has fetched *me* a broadside too! Let's both have a haul at him together, Jack; then we shall board his slippery carcase in spite of his rudder." Accordingly, they both plunged their hands into the tub, and seized the eel, fully grasping it around the body. As this was rougher treatment than the animal commonly experienced, he returned it with a most violent shock, which caused the sailors instantly to quit their hold. For a moment they stood aghast, then rubbing their arms, holding their elbows, and shaking their fingers, they capered about with pain and amazement, declaring that their arms were broken, and that the Evil One must be in the tub in the shape of an eel. They were now persuaded that it was not a simple blow of the tail they had felt before; but they could not be prevailed on to make another attempt to take out the fish, but stole away, abusing the trick about the cook and the eel.

Some years ago, the writer saw the electrical eel, exhibited at the Adelaide Gallery, give one of the visitors a tremendous shock. The celebrated professor Schonbein, the inventor of gun-cotton, also tried its power. "I endeavoured to endure it," he says, with *sang froid;*" but it seems to have caused him so to contract his countenance, and to make such curious gestures, that his friends standing by burst into loud peals of laughter. A few days before this, Captain Basil Hall, and a life-guardsman, who came on the boards with his sword and cuirass, were alike laid prostrate by a shock. And to mention only one more instance, when six or seven persons joined hands, the one at the extremity of the line near the tail touching that part, while the one near the head touched that also, the whole party felt a succession of shocks, which caused them to jump and scream, and deprived them of all inclination for another experiment.

The organ of the eel which produces such singular effects occupies the under-part of the tail, or terminal portion of the body, and consists of four longitudinal masses, two large ones above, and two small ones below. Each mass is composed of a vast number of membraneous laminæ, or thin plates, closely set together, and nearly horizontal. These plates have their external margin affixed to the skin, and they rise to a level with the vertebral column; they are also united to each other by an infinite number of small transversal plates, and thus a multitude of transverse cells is formed. These cells are filled with a gelatinous matter, abundantly supplied with nerves, and on these nerves depend the eel's electrical power. But how, or in what manner an accumulation of the electrical fluid takes place, or how it is that the animal discharges it, and that in any direction at its pleasure, are questions which, at present, we have no means of resolving. Here is one of innumerable instances in which we are stopped by impassable barriers in the progress of our investigations among the wonders with which the great field of creation teems. How soon do we discover the limitation of our faculties and their inadequacy to grasp but a small part of the ways and workings of the Almighty!

But why, it may be asked, has the eel this electrical power? To this it may be replied, As the means of securing its natural prey. Only let live fish be put into the tub in which the eel

swims about, and let it be disposed to have a meal, and by a discharge of its artillery they are instantly killed, and are swallowed at its pleasure. Its power of making this discharge has been repeatedly proved to be under its own control. In wounded animals, it is usually more feeble, and sometimes it appears to be reduced to the lowest degree. But it is not always so; for it has occasionally happened that persons have handled an apparently exhausted eel for some time, without any shock being experienced, when all at once its battery has been discharged with the greatest effect. Several times Humboldt was bold enough to hold one of these fishes by the tail, and even to pinch it; yet he received no shock till his fellow-traveller, Bonpland, tickled it on the belly, or on the gill covers. At this crisis the shock to Humboldt was terrible, while Bonpland was conscious of no sensation. When two persons touch at once the space occupied by the electric apparatus, their fingers being two inches apart, it is seldom that both are affected by the electrical explosion at the same time. It depends, indeed, on the will of the animal to which of the objects touching it it should direct the electric fluid, or, still more strange to say—whether it will call up this or that portion of its electrical battery into action. When two persons touch the eel, each with a metallic rod, and bring the ends of the rod on the body of the animal to within five or six lines of each other, both are not affected simultaneously, for the eel discharges its electricity first through one rod, and then through the other, giving a shock to each holder in succession. It is found that when tickled on the under surface, on the pectoral fin, on the lips, eyes, and especially the gill covers, that the animal gives the most violent concussions. These parts seem to be peculiarly sensitive, and the skin over them is very delicate.

That the electricity in action is the ordinary electricity, is proved by its producing the same effects. One evidence is afforded by the shocks it produces. "I never remember," says Humboldt, "to have experienced a more terrible blow from the discharge of a Leyden jar of great size than one which I received on putting my two feet on an electrical eel which was dragged out of the water. During the rest of the day I felt great pain in the knees, and in almost every joint of my body. A blow on the stomach, a stone falling on the head, a tremendous electric explosion, produce, in an instant, the same effects: nothing is distinguished, all is vague, when the whole nervous system is thus shocked violently at the same moment." The writer has seen other phenomena arising from the active power of the eel—as the electrical spark and the deflagration of gold leaves, these leaves being mutually attracted from a sensible distance, and actually burning on coming into contact.

THE PARTING OF HECTOR AND ANDROMACHE.

This beautiful episode is well known to the readers of Pope's "Homer's Iliad;" but in order to give those who are unacquainted with Greek an opportunity of reading it out of its poetic dress, and of thereby ascertaining for themselves the noble simplicity and exquisite tenderness of the original, a plain English version of the passage is subjoined. Occasionally, it must be premised, a word or two occurs in the Greek, of which there is no direct English equivalent.

Andromache addresses Hector (Book VI. 407):—"Rash man, thy courage will be thy ruin; thou hast no pity for thy infant boy nor for me unhappy, who will soon be thy widow. Soon will the Achæi in a body fall on thee and slay thee; but for me it would be better after such a loss to lie in my grave, for no comfort shall I have when thou hast met with thy fate.* In sooth, Achilles, sprung from Jove, slew my father, and plundered the well-built city of the Kilikes, Thebe with lofty gates; he slew my father Eetion, but he robbed him not of his armour; he feared to do this. He burnt his body with his cunningly-wrought armour, and over him he raised a mound of earth, around which the nymphs of the mountains planted elms, the nymphs the daughters of Jupiter with the Ægis. Seven brothers, too, I had in my father's house, and all perished in one day, for Achilles, swift of foot, slew them while tending the oxen with crooked hoofs and the white-fleeced sheep. My mother, who was a queen in woody Hypoplacus, Achilles, after he had brought her here with all our possessions, set free for a large ransom; and she died by the arrows of Artemis (Diana) in the house of my father. But thou, Hector, art to me both father and revered mother and brother, thou art my noble husband. Come now, take pity on me, and stay here on the battlements, and make not thy son an orphan and me a widow. Place thy people here by the wild fig-tree, where the city is most assailable, and the wall most open to attack. Thrice have the bravest come and made an onset here, the two Ajaxes, and far renowned Idomeneus, and the sons of Atreus, and the bold son of Tydeus; perchance some one well skilled in the ways of fate has advised to this, or it may be, their own courage urges them to the attack."

To her replied great Hector with the curiously-wrought helmet:—"In truth, my wife, all that thou hast said fills me too with care; but much do I fear what the Trojans will say, and the long-robed women of Troy, if like a coward I shun the battle. Nor will my heart let me do it, for I have been trained to be a brave warrior, and to fight in the first ranks, for the glory of my father, and for my own. Well do I know there will be a day when sacred Ilion must fall, and my father Priam, and the people of my warlike father. But I care not so much for the sorrows of the Trojans that are to come, nor for the fate of my mother Hecuba, nor my father Priam, nor for my brethren, many and brave though they be, who will fall in the dust before their enemies—as for *thee*, when some Achæan, clad in mail of brass, shall lead thee weeping into captivity to Argos, where thou must ply the loom at the bidding of a mistress, and carry water from the spring of Messe or Hypereia, an unwilling slave indeed, but the strong hand of necessity will be upon thee; and perchance some one will say as he sees thee drop a tear, 'This is the wife of Hector, the bravest of the horse-taming Trojans, when our people fought about Ilion.' Thus, perchance, some one will say, and this will be to thee a fresh sorrow, to feel the want of thy husband to ward off the day of servitude. But may the earth upheaved cover my body before I hear the wailings of thy captivity."

Thus spoke noble Hector, and stretched out his arms to his son; but the child with cries clung to the bosom of his well-zoned nurse, startled at the appearance of his father, scared at the brass, and the horse crest which nodded fearfully from the top of the helmet. The fond father and the chaste mother smiled. Straightway Hector took the helmet from his head and laid it all-glittering on the ground: he kissed his dear son, and fondled him in his arms, and then addressed a prayer to Jupiter and all the gods:—"O Jupiter, and ye gods, grant that this my son may be, like his father, a leader among the Trojans, brave in battle and a brave king of Ilion. And hereafter may the people say of him as he comes from battle, 'He is far braver than his father;' and may he bring back the bloody spoils having slain his enemy, and please his mother's heart."

Thus he said, and placed his child in the arms of his dear wife, who received him on her sweet bosom, smiling amidst her tears. Her husband saw and pitied; he gently touched his wife, and said, "Dear woman, grieve not, I pray, over much, for no enemy shall send me to the world below before the time of fate. And no man has ever escaped death, neither the coward nor the brave, when he has once come into the world. But go home, and attend to thy labours, to the loom and the distaff, and bid the slaves perform their tasks; war is the business of men, and mine most of all who live in Ilion."

Thus spake noble Hector, and took his helmet crowned with a horse's tail. His wife went homewards, but often looked back and dropped a large tear.

* Here a line is omitted, which is probably spurious.

WORKS OF AUDUBON.



THE RED-WINGED THRUSH (*Turdus Rufus*). FROM A DRAWING BY AUDUBON.

THE red-winged thrush, or little mocking-bird of America, has a black attenuated beak, rather long, slightly curved, compressed, pointed, arched in the middle of the upper mandible, sharp at the edges; the lower mandible is of a clear blue colour at the base, and is almost straight; the nostrils are of an oblong shape, and half closed by a thin membrane. The general appearance of the bird is light and elegant. Its feet are brown, strong, and rather long, the tarsus compressed, and slender towards the upper part, as



THE BLUE JAY OF AMERICA. FROM A DRAWING BY AUDUBON.

also the fingers and the tibia; the claws are contracted, curved, and very sharp. Its plumage is soft and speckled. The first feather of the wings is rather short; the fourth and fifth rather longer. There are a dozen of them in the tail, long and wide-spreading at the ends. The iris is yellow. The general colour of the bird is a dark but still brilliant red. Across the wings there are streaks of white, edged with a sort of black fringe, presenting a very beautiful contrast. The under part of the body is of a brownish white colour, sprinkled with rich brown spots. The plumage of the tail has a reddish hue, but presents a lighter appearance than the other parts of the body. The female closely resembles the male. The wings of the former are somewhat smaller when extended, and the spots on the neck are less sombre, but these are the only perceptible differences.

The nest in our engraving is supposed to be built in the black oak, a species very common in Kentucky, the wood of which,

however, is only used for firing, and the acorns for feeding hogs. The black serpent glides nimbly along the trunk of the tree, reaches the ground, and almost invariably escapes pursuit through the thickets of brushwood. It lives on birds, frogs, eggs, and the smaller quadrupeds, and evinces the greatest antipathy to all other species of serpents, which it fights fiercely upon the least provocation, although deprived of its fangs.

An attack made by one of these animals upon a red-winged thrush's nest has been faithfully and graphically sketched by Audubon, and is admirably reproduced in our engraving. The vain attempts of the old ones to defend their eggs and home against the destroyer are depicted in a touching and beautiful manner.

THE TROUBADOURS.

After the overthrow of the Roman empire in the West, the northern languages of the invaders became engrafted upon the *rustic Roman*, or provincial Latin, which everywhere prevailed throughout the western territories of the empire. It was not, however, until the tenth century that these rude dialects attained to sufficient consistency to form distinct and separate languages for each of the nations of southern Europe. This consolidation divided the written language of France into two great branches—the *langue d'Oi* and the *langue d'Oc*, or the Provençal; the Romance spoken north of the Loire, and the Romance which prevailed south of that river. Of all the new languages which were formed about this period, the latter of the two French idioms now mentioned was the first formed, and the most rapidly cultivated. Flexible, lively, and artificial, it became the vernacular of all southern Gaul, and of Catalonia and Arragon in Spain. Dryden, in the preface to his Fables, says that it was the most polished of all the modern languages, and that Chaucer availed himself of it to ornament and enrich our own. Contemporaneously with the development of the Provençal tongue, chivalry had its rise. The feudal system had already been in existence for three or four centuries, and for its harsh realities, this new "spirit of the age," whose essential character was devotion to women and to honour, largely substituted its own romantic and attractive social fictions. Feudal relations became modified, and a taste for elegance and the arts at length made its way over the Pyrenees, and took root in the south of France. In such a state of improved civilisation and softened manners shone out the spirit of poetry "over Provence and all the south of Europe, like an electric flash in the midst of the most palpable darkness, illuminating all things by the brightness of its flame." The organs through which it spoke were the Troubadours.

"Appearing on the horizon as morning stars of a new civilisation, just as the thick mists of the dark ages of our era had rolled away from France, these poets stand forth as utterly unconnected with the past, and are, therefore, the first literary representatives of modern European society, as distinguished from the ancient societies of Greece and Rome." These sentences correctly point out the position which the "inventors" occupied in the literary history of Europe. Rising in an era which still retained many of the barbarous customs of the dark ages that had scarcely passed away, their reputation spread rapidly from the extremity of Spain to that of Italy, and they served as models to nearly all the poets who succeeded them. The comparatively few remains of their brilliant but superficial productions, which are now accessible, reveal to us the sentiments, the imagination, and the spirit of modern Europe in its infancy. Such being the influence which they exerted upon modern literature, and the relation in which they stood to it, a few brief notes about the most distinguished of these "poets of chivalry," of whom so little has been written in our own language, may not be without interest.

The troubadours were nearly all men of rank, who lived in their own domains, and cultivated poetry rather for its own sake than for the rewards which followed it. Some, however, were raised above their fellows by their rank in society, rather than by superiority of poetic talent. The earliest of these was William count of Poictiers and duke of Aquitaine. A circumstance in the life of this troubadour, who was born in the year 1071, will serve to show the prevalence of vice, no less than of wit, in his character. In open violation of all law, he had married the wife of the viscount of Chatteleraud. This adulterous connexion excited the displeasure of the bishop of Poictiers, who threatened him with excommunication unless it was broken up. William drew his sword and threatened to kill the prelate if he did not immediately absolve him; the bishop feigned himself alarmed, and desired a moment for reflection, but employed the short delay in finishing the threatened ceremony of expulsion from the church. "Strike now," said the prelate, "I am ready." "No," said the count, "I do not love you well enough to dismiss your soul to paradise; but I will send your body into exile." He afterwards took part in the crusades, and on his return gave himself up to indulgence in sensual pleasures, and to poetic celebrations of love and war. Nine of these compositions have been preserved, and are remarkable for the elegance and harmony of their versification. He died in 1122. William of Poictiers was not the only prince who cultivated *el Gai Saber* (the gay science), as this class of poetry was then designated. Richard I., of England, was hardly more distinguished for his abilities as a warrior than for his poetic talents in treating of the details of the heart. Only two efforts of his muse, however, remain. One of these interesting relics formed his reply to the song of his minstrel Blondel, who thus discovered the place of his master's confinement. It runs thus:—

"No nymph my heart can wound,
If favour she divide
And smile on all around,
Unwilling to decide;
I'd rather hatred bear,
Than love with others share."

The other poetical effusion of Cœur de Lion was a song written during his confinement in the same prison, in which he laments the neglect and ingratitude of his former friends and followers. The first and last stanzas will be a sufficient sample of these royal lugubrations:—

"No wretched captive of his prison speaks,
Unless with pain and bitterness of soul,
Yet consolation from the muse he seeks,
Whose voice alone misfortune can control.
Where now is each ally, each baron, friend,
Whose face I ne'er beheld without a smile?
Will none, his sovereign to redeem, expend
The smallest portion of his treasures vile?

* * * * *

Know all ye men of Aquitaine and Touraine,
And every bach'lor knight, robust and brave,
That duty, now, and love, alike are vain,
From bonds your sovereign and your friend to save?
Remote from consolation, here I lie,
The wretched captive of a powerful foe,
Who all your zeal and ardour can defy,
Nor leaves you ought but pity to bestow."

With Richard of England may be compared Frederick of Sicily, as in both the poetic talent was the organ of politics, as well as of gallantry. A few scraps, however, are all that remain of his effusions, but these are sufficiently striking to show that he attained no mean eminence as a troubadour. Amongst the other distinguished professors of the gay science may be mentioned Bertrand de Born, lord of Hautefort, a restless, intriguing man, whom Dante has placed in his *Inferno*, for having encouraged the rebellion of the sons of Henry II. of England against their father. In his terrible fiction the Italian poet is represented as meeting Bertrand in hell; the troubadour advances towards him *carrying his head in his hand*; the lips open, and thus address the author of the "Divine Comedy:"—

——"Now behold
This grievous torment, thou, who breathing goest
To spy the dead: behold, if any else
Be terrible as this. And that on earth
Thou may'st bear tidings of me, know that I
Am Bertrand, he of Born, who gave king John
The counsel mischievous. Father and son
I set at mutual war. For Absalom
And David, more did not Ahitophel,
Spurring them on maliciously to strife.

For parting those so closely knit, my brain
Parted, alas! I carry, from its source,
That in this trunk inhabits. Thus the law
Of retribution fiercely works in me."

Much as he was devoted to war, however, this ardent knight was not insensible to the charms of love. He became passionately attached to the daughter of the Viscount de Turremal; his love was reciprocated, but jealousy often ruffled the "smoothness" of its course. One of his extant pieces is a defence of himself against her suspicions of his fidelity. In one of these stanzas he thus pleads for a continuance of her favour:—

"I cannot hide from thee, how much I fear
The whispers breathed by flatterers in thine ear
Against my faith. But turn not, oh! I pray,
That heart so true, so faithful, so sincere,
So humble, and so frank, to me so dear,
Oh lady! turn it not from me away."

But more distinguished for poetic talent than any yet mentioned was Armand de Marveil. This troubadour was born at Marveil, in Perigord, in a humble rank of life, from which his talents fortunately raised him, and he became attached to the court of Roger viscount of Beziers. The divinity on whom his affections were bestowed, and whose charms were celebrated by his muse, was the Countess Adelaide, the wife of his master. The following lines well express the tenderness which pervades most of his compositions:—

"All I behold recalls the memory
Of her I love. The freshness of the hour,
Th' enamell'd fields, the many coloured flowers,
Speaking of her, move me to melody.
Had not the poets, with their courtly phrase,
Saluted many a fair of meaner worth,
I could not now have rendered thee the praise
So justly due, of 'fairest of the earth.'
To name thee thus had been to speak thy name,
And waken, o'er thy cheek, the blush of modest shame."

This "great master of love," as he has been named, died somewhere about the end of the twelfth century. "He has left many poems," says Sismondi, "some of which are very long. One of his pieces contains four hundred verses, and many of them two hundred. His language is clear and easy, and his text appears to have suffered but little alteration. He is, therefore, a troubadour whose works might be separately printed, to try the taste of the public for Provençal poetry, and at the same time to gratify the wishes of the learned throughout all Europe, who regret the loss of these monuments of our earliest literature and civilisation."

Next to De Marveil may be ranked Arnaud Daniel. This distinguished troubadour, whom Petrarch considered the greatest of all the Provençal poets, was born in the twelfth century, in the castle of Ribeyrac, in Perigord, of poor but noble parents. His success and reputation were largely owing to a new kind of composition, called the sestino, or six-lined stanza, of which he was the inventor. Its merit consisted in the difficulty of certain combinations of verses, repeated in a certain order. Most of his pieces are sonnets, which were addressed to the wife of William de Bourville, his "ladye-love." An anecdote remains on record, in connexion with a visit which he made to England, which illustrates rather the aptness of his memory than the readiness of his poetic talent. Being at court, he was challenged by a minstrel, in the presence of the king, to cope with him in the composition of a song. Daniel consented, and a wager was taken. The king gave them ten days to compose the piece, and five to learn it. At the end of the third day the minstrel announced that he was ready. But the troubadour, who occupied an adjoining chamber, had laboured in vain to compose a syllable. On the following evening, however, he overheard his rival practising his song; the same thing occurred on the next day; Daniel listened attentively, and at length made himself master both of the air and the words. On the day appointed they appeared before the king, when Daniel, who sang first, repeated the minstrel's song. The latter claimed the composition as his own, but the king declared it to be impossible. The troubadour at length owned the fraud, and the sovereign, pleased with the adventure, restored to each the money they had deposited, and loaded them both with presents. The date of this poet's death is unknown.

The few examples now given will be sufficient to convey an idea of the general character of these amatory productions. Love and war were their themes, and upon these their celebrators rung every possible variety of changes. They did not consist, however, merely of single and distinct poems by individual authors. There was one large class of them—called *Tensons*—in which two troubadours carried on a sort of poetic debate, in which love and logic were about equally prominent. One of the disputants opened the discussion by starting some point of amorous jurisprudence, which he defended in quaint verses, and with a truly laudable display of legal acumen: his opponent answered in the same style, and the poetic pleadings were continued as long as the respective advocates could find arguments and rhymes. The matter was then referred to a tribunal, called a *Cour d' Amour* (Court of Love). This, which was one of the most curious institutions connected with the profession of the troubadours, consisted for the most part of ladies eminent for rank and character, whose decisions in all matters of love and gallantry were absolute and final. One or two of the questions submitted to these tribunals, and of their judgments upon them, will sufficiently illustrate their character and functions:—

"*Question.* Is it between lovers, or between husband and wife, that the greatest affection, the liveliest attachment, exists?

"*Judgment.* The attachment existing between husband and wife, and the tender affection existing between lovers, are sentiments of a very different nature: a just comparison cannot be established between matters which bear no mutual relation to each other.

"*Question.* A troubadour having loved a young lady still in her childhood, as soon as she attained a more advanced age declared his love, and received from her a promise of a kiss when he should come to see her. Nevertheless, she subsequently refused to fulfil her promise, on pretence that when she made it she was not of an age to understand its consequences.

"*Judgment.* The troubadour shall be at liberty to take the kiss, but upon condition that he immediately restore it."

Many of these lady-judges were themselves able to reply to the poetic effusions composed in honour of their charms. Only a few of their compositions remain, but these are sufficient to show that their poetic talent was not inferior to that of the troubadours. "Poetry, at that time," says an acute critic, "aspired neither to creative energy, nor to sublimity of thought, nor to variety. Those powerful conceptions of genius which, at a later period, have given birth to the drama and the epic were yet unknown; and, in the expression of sentiment, a tenderer and more delicate inspiration naturally endowed the productions of these poetesses with a more lyrical character." The following stanzas, from one of the most beautiful of these songs, by Clara d'Andusa, are a favourable sample of these tender productions, whose chief merit was the exquisite harmony of their verse, which cannot, of course, be preserved in a translation:—

"Into what cruel grief and deep distress
The jealous and false have plunged my heart,
Depriving it by every treacherous art
Of all its hopes of joy and happiness:
For they have forced thee from my arms to fly,
Whom far above this evil life I prize;
And they have hid thee from my loving eyes.
Alas! with grief, and ire, and rage I die.

"Yet they, who blame my passionate love to thee,
Can never teach my heart a nobler flame,
A sweeter hope, than that which thrills my frame,
A love so full of joy and harmony.
Nor is there one—no, not my deadliest foe,
Whom speaking praise of thee, I do not love,
Nor one, so dear to me, who would not move
My wrath, if from his lips dispraise should flow.
* * * * *
"Love! so o'ermastering is my soul's distress,
At not beholding thee, that when I sing,
My notes are lost in tears and sorrowing,
Nor can my verse my heart's desire express."

But the reputation of these Provençal poets was destined to be ephemeral. It is true that the literature which they created

onjoyed a brilliant existence of three centuries; but it contained within itself its own principle of decay, in the great ignorance of its authors, and in the impossibility of their giving to their poetry a higher character than was possessed by themselves. Their only models were the songs of the Spanish Arabs; with the elegant inventions of ancient classical literature they had no acquaintance; and of the inspiring influence of strong religious emotions they were equally ignorant. It is not to be wondered at, then, that such a paucity of resources produced not a single masterpiece, or a single work of genius destined to a literary immortality. After the thirteenth century the voice of the troubadours was silent; and their poetry, which had been the delight of every court, which had animated every festival, and infused chivalrous life into all classes of the people, became ranked amongst the productions of the dead languages. It was like a beautiful flower springing up in a barren soil. But the crusade waged by pope Innocent III. against the Albigenses, who had taken refuge in Provençe, hastened the extinction of the poetic race, whose decline had already begun. In a land thus devastated by horrors unparalleled in the history of religious persecution, the Muses refused their inspiration, and the voice of the troubadours was heard no more.

THE "TUB" OF DIOGENES.

The "Tub of Diogenes" is probably better known to our readers than any other of the domestic utensils of the ancients, notwithstanding all that has been done in excavating remains and collecting vases and other vessels in use amongst the Etruscans, Greeks, and Romans. Everyone has heard of the contempt of the philosopher himself for all the rest of mankind, and his stern repudiation of the use of most of the comforts as well as luxuries of life, and is aware that his snarling, doggish disposition at last procured him the appellation of the *Cynic*. Most people know, also, that he was in the habit of drinking water out of a shell, till he saw a boy drinking from the hollow of his hand, whereupon he instantly threw away the shell, and adopted the same course, angry with himself for having so long indulged in the use of a piece of unnecessary luxury, and that, when Alexander the Great, then in the height of his power, visited him, and asked him what favour he could bestow on him, that he sternly replied, "To stand out of my sunshine."





It is not, however, so much with the philosopher himself that we are about to concern ourselves, as with a little peculiarity of his, namely, his fancy for living in a tub; and coming down from generals to particulars, we beg to direct our readers' attention to the tub itself, and then to assert in the face of the unanimous testimony of the most renowned scholars of ancient and modern times, that Diogenes did *not* live in a "tub," but in a pot. A Flemish painter has represented Ulysses smoking a clay pipe, and it is just as ridiculous to put the illustrious cynic in a big washing tub. The popular notion takes its origin in an error of translators, who have rendered a word which really means a wine vessel, a tub. But tubs, or more properly speaking casks, were, as Pliny tells us, of Celtic or Gallic origin. The Greeks and Romans kept their wine in *amphoræ*, which are nothing else than great clay pots, often without a flat or standing bottom, and which were buried in the sand in their cellars. It was very natural, then, for Diogenes, when in search of a moveable cave, to choose a vessel of this description to serve as his place of abode, and it is stated, moreover, that he would by no means have anything but a cracked one, which of course could be of no use for any other purpose—a fact quite in keeping with the simplicity of the good man's character.

The sum of the whole then is, that Diogenes, being a "cynic," lived in a kennel, and that the kennel was a cracked pot. We give an engraving of him as he may be supposed to have appeared in his palmy days.

It would appear, however, that certain people in distant parts of the world, who doubtless never heard of the Greek philosopher, made a similar sort of utensil to that in which he fixed his habitation serve as a sepulchre for their dead. However commonplace, or even ridiculous this mode of sepulture may seem to us, it was doubtless adopted with the very natural desire to secure to the ashes of the departed a safe and durable retreat, in which they might be preserved from mingling with the common dust around. Some of these singular remains of an unknown state of society, containing the mummies of warriors or chiefs, doubtless famous men in their time, have been found at the foot of great trees in the primeval forests on the banks of the Paraiba, in Brazil, a territory now inhabited, or rather possessed, by the Corroados tribe of Indians. We give an engraving of one of them, as sketched by M. Debret, a French traveller.

SWITZERLAND IN SUMMER.

A few months ago we presented our readers with an engraving of the Cascade of Giessbach as it appears when frozen in winter. Our present sketch is taken from a different point of view, and at a different season of the year, and represents a scene of surpassing beauty. None of the Swiss waterfalls equals that of Giessbach. Reichenbach has a greater supply of water; Staubbach is higher; the fall of the Rhine more imposing; but in grace and picturesque beauty there is nothing like Giessbach. Standing in front of it, it seems to fall in the midst of verdure, for rock and sand are completely hidden under the moss and long sedge-grass. Underneath the rock over which the water rolls, trees and shrubs stretch out from beneath, and make it seem as if Giessbach fell from the sky across forest foliage, as it leaps out so as to leave a wide interval. Nothing can be more striking than the landscape in front as seen by the spectator in the rear, through the liquid, but transparent mass, which precipitates itself into the river below with a tremendous noise, whence it flows calmly on and loses itself in the lake of Brientz.

Wealthy foreigners sometimes illuminate the cascade, if we may so speak, by fixing torches in the brushwood between the rock and the water; and it is said that this forms a spectacle of surpassing magnificence. It is almost to be regretted, however, that the desire of producing a scene of transient brilliance should have induced any one to adopt means like this, as the smoke from the torches has blackened the rocks all around, and thus deprived them of the blue and yellowish tints which add so much to the beauty of mountain scenery. There is always sufficient grandeur in the landscape to impress the mind with the sublimest emotions without any artificial aids. To stand on the rocky pathway, on a fine night in summer, when the moon is high in the heavens, the lake sleeping in beauty, and not a sound abroad but the voice of the cataract, is to enjoy one of those exquisite pleasures which few but tourists ever know.

Between Faulhorn and the Wildgerst, nearly three thousand feet above the level of the sea, is a gloomy and narrow valley, stretching east and west, called the Valley des Perdrix de Neige. It is surrounded by lofty mountains, rising perpendicularly like hugo walls, so that no ray of the sun ever penetrates it, and the snow never melts even during the hottest summers. It contains two lakes, the ice on which is thawed during two weeks only. Black, motionless, and gloomy, almost always covered with a crust of ice, they resemble the lakes of the infernal regions described by Dante. One is called the Lac des Sorcieres, the other the Lac de Grêle. These two are the sources of the Giessbach. One of its branches flows from the former under ground, the other from the latter above ground, and the two unite a little farther down to form the first cascade, that called



CASCADE OF GIESSBACH IN THE BERNESE OBERLAND. DRAWN FROM NATURE BY KARL GIRARDET.

the Ischingelfeld. It soon after receives several additions from smaller streams, and flows through a gorge of frightful depth, in issuing from which it rushes on with great rapidity, as if rejoicing in its deliverance. It soon grows calm, and meanders gently through the meadows and corn-fields of a shady valley; but on its arrival at the farther extremity it leaps from fall to fall until it reaches the Lake of Brientz, about 2,000 feet below. The Swiss have given to these cascades the names of some of their great patriots, who in evil days stood boldly forward for the right, and died in battle for their country and liberty. Too poor to raise marble columns or storied urns to perpetuate the memory of their benefactors, they have called upon the sublimest scenes of their native land to hand down to all coming generations the noble deeds of "the brave days of old,—"

——"Monumentum ære perennius
Regalique situ pyramidum altius."

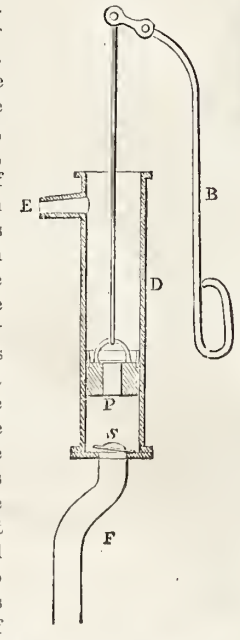
HYDRAULICS;

OR, THE RAISING OF WATER BY MACHINES.

Water for domestic use, and the purposes of draining and irrigation, has been raised by machines from an early period; and numerous have been the inventions of this kind, from the ancient rope and bucket, down to the modern steam-engine. Some ingenious hydraulic machines were known even before the Christian era; among which may be reckoned the screw of Archimedes, the pump of Ctesebius, the tympanum of Vitruvius, and the Persian wheel. Animal power, the force of water, and the pressure of steam have all been employed as prime-movers of hydraulic machines. Leaving out of consideration at present the nature of the moving power, such machines may conveniently be divided into two classes: *first*, those in which atmospheric pressure, steam, or hydrodynamic impulse is employed; as pumps, hydraulic rams, &c. And, *secondly*, those in which buckets, float-boards, vanes, and similar apparatus are used, as Archimedes' screw, water-wheels, tympanums, norias, &c. Among the first class of machines, the most useful of which we propose now to describe, may be included the hydrostatic press of Bramah, its practical utility depending solely on the application of the forcing pump.

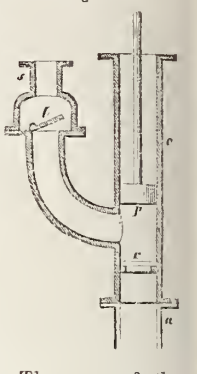
The common suction-pump, of which the invention is attributed to Ctesebius falls to be first described. It is represented in fig. 1; where F is the suction-tube, communicating at its lower end with the well or pond from which the water is to be raised; and, at its upper end with the body of the pump D, which is a truly bored cylinder. The piston P, which moves in the body of the pump is furnished in the middle with a valve opening upwards, and a similar valve, S, is placed at the upper extremity of the suction-tube F. When the piston P is raised from the bottom of the cylinder D by the handle or lever B, the valve S opens, the air contained in the suction-tube F, passes through it into the body of the pump, and is there rarefied. When the piston is lowered, the valve S is shut, and the air compressed between this valve and the piston opens the valve in it, and escapes by the aperture E. In this manner every successive stroke of the piston rarifies the air in the suction-tube until a sufficient vacuum is formed, when the water in the well or pond will rise in this tube by the pressure of the atmosphere or external air on its surface; and if the tube be not more than thirty feet in length from that surface to the valve S, the water will force its way through this valve into the body of the pump. When this valve is again shut by the descent of the piston to the bottom of the cylinder, the water, unable to return through the valve S into the suction-tube, will be forced through the piston-valve into the upper part of the cylinder above the piston, and by the ascent of the latter, through the discharge-pipe E, into the reservoir or vessel appointed to receive it.

Fig. 1.



Having explained the nature of the common pump, erroneously called *suction-pump*—seeing that the *suction* of the water, or its ascent in following the piston, is due simply to the pressure of the atmosphere, and that it would fail in so doing, as soon as the column of water exceeded that pressure, the limit being at the utmost within thirty-four feet—we proceed to describe the operation of the *forcing pump*, represented in fig. 2: *a* is the suction-tube, having its lower end immersed in the water as before. *p* is a solid piston without a valve, which moves in the body of the pump *c*, by means of a lever as in the common pump. The air is withdrawn from the suction-tube as before; but instead of escaping through a valve in the piston, as it cannot return through the valve *r*, it is forced by the descent of the piston *p* up through the valve *l*, into the ascension tube *s*, the water then follows by the pressure of the atmosphere and the ascent of the piston, and is forced through the valve *r*: this valve is then closed by the descent of the piston, and the water in the body of the pump is forced through the valve *l*, and up the ascension-tube *s*, from which it cannot return, as its weight shuts the valve *l*. This process is continued until the water in the ascension-tube is raised to the required height, the force necessary to raise it by pressure on the piston continually increasing until it reaches that height, and is discharged from the ascension-tube.

Fig. 2.



In practice, the following rules are observed in the construction of pumps. The velocity of the piston is calculated to vary from six to nine inches per second. The area of the aperture covered by the valves is about half that of the body of the pump. The diameter of the suction-tube, and of the ascension or discharge-tube, is about two-thirds of that of the body of the pump. The stroke of the piston in large pumps, varies from three and a half to five feet. In good pumps, the loss occasioned by the time required for shutting the valves reduces the effect to about four-fifths of that produced by the piston. The following figures present different models of pistons and valves employed in the construction of pumps. Fig. 3, a piston packed with leather; fig. 4, a piston packed with hemp; fig. 5, a piston furnished with a single clack-valve; fig. 6, a piston with a double-clack or butterfly valve; fig. 7, interior of the body of a pump, in the bottom of which a single clack-valve works; fig. 8, separate view of a single clack-valve; fig. 9, a conical valve.

Fig. 3.



Fig. 4



Fig. 5.



Fig. 6.



Fig. 7.

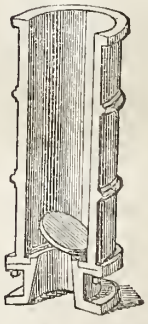


Fig. 8.

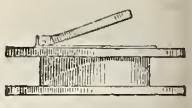


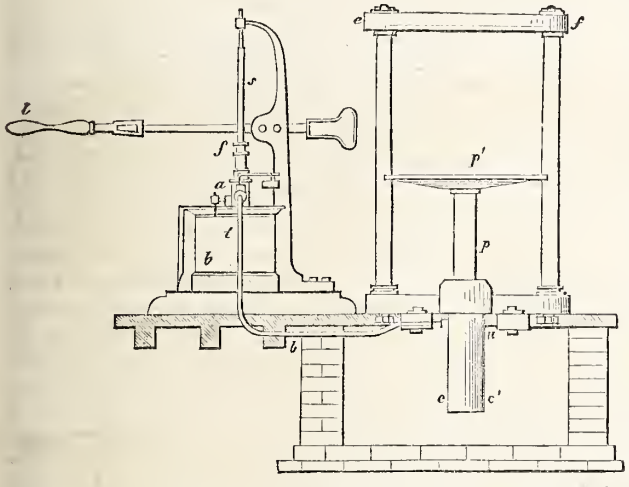
Fig. 9.



The hydrostatic or hydraulic press invented by Mr. Bramah, and patented in 1796, is a beautiful application of a principle previously known for nearly two centuries, and commonly called the hydrostatic paradox; viz. that any quantity of water, however small, may be made to balance any quantity however great. The practical effect of this principle is, that when water enclosed in a vessel quite full of the liquid, is pressed by a piston at any aperture with a given force, this pressure is at once communicated to every part of the vessel of the same size as the aperture, with the same force. Mr. Bramah, by an ingenious application of the forcing-pump to an apparatus constructed on this principle, produced one of the most powerful and useful machines used in the present day. It is represented

in fig. 10, where s is the piston which moves in the cylindrical tube f, or small body of the pump; p is the piston which moves in the cylinder $c c'$ or large body of the pump; and $a\ t\ b\ u$ is the tube of communication between the two bodies of the pump. A lever of the second kind l raises the piston s, and the water in the reservoir b' is drawn into the body of the pump f. When the lever is pressed downward, a valve shuts, and prevents the water from returning into the reservoir b', and forces it along the tube $t\ b\ u$, in order to act upon the lower extremity of the piston p, to which is attached the plate p'; $c f$ is another plate, against which the objects to be compressed by the machine are pushed by the former. In consequence of the *quaquaversal* pressure of the water forced into the large body of the pump from the small one, the pressure of one pound on every square inch of the surface of the liquid in the latter will be communicated to every square inch of the surface of the liquid in the former. Hence, if the

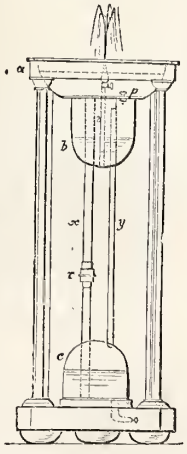
Fig. 10.



diameter of the piston s be one inch, and that of the piston p be ten inches, the pressure of one pound on the former will be 100 lbs. on the latter. A noble specimen of this press was exhibited in the Crystal Palace by the Bank Quay Foundry Company, Warrington; viz., that which was used for raising the Britannia Tubular Bridge. The greatest weight lifted by this press was 1,144 tons, and the quantity of water used for every lift of six feet, was 81½ gallons. The internal diameter of the great cylinder was twenty-two inches, and that of the ram or piston twenty inches.

A variety of hydraulic machines have in modern times been constructed on the principle of *Hero's fountain;* such as the Hungarian machine employed for raising water from the mines of Schemnitz, the machine of Detrouville, the mechanism of Girard's lamps, &c. It is represented in fig. 11, and is composed of three vessels; an upper vessel a; a middle vessel b; and a lower vessel c. These vessels are connected by three tubes: the first x, descends from the bottom of the upper vessel, nearly to the bottom of the lower vessel; the second y, rises from the top of the lower vessel nearly to the top of the middle vessel; and the third z, rises nearly from the bottom of the middle vessel, and terminates in a jet a little above the upper vessel. The operation is as follows: water is put into the vessel b, by means of the cock p, it is then closed; water is also put into the vessel a; the cock r, in the tube x is then opened, and the water rushes from the upper vessel into the lower one; in this vessel the water is immediately acted on by the compression of the air which it contains, and is forced

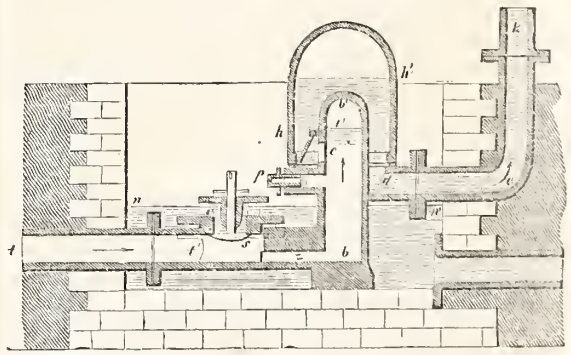
Fig. 11.



up the tube y into the vessel b; here the water is again acted on by the compression of the air which this vessel contains, and is forced up the tube z, through the jet, into the atmosphere, rising to a height above the upper vessel, which, theoretically speaking, is as much above the level of the water in the middle vessel as the level of the water in the upper vessel is above the level of the water in the lower vessel. The reason is that the air which is contained in the lower vessel, and in the middle one, supports a pressure determined by a height of water equal to the difference between the two levels of the water in the upper and lower vessels; the water contained in the middle vessel must therefore rise in the tube z, to the height due to this pressure.

The hydraulic ram, invented by Montgolfier in 1797, is a self-acting machine for raising moderate quantities of water. It is composed of an air-vessel and three valves, two for the water, and one for keeping up the supply of air. Its construction is founded on the principle that, if two vertical tubes communicate by a horizontal one, water falling from a certain height in the first vertical tube, and shutting instantaneously a valve placed near the extremity of the horizontal tube, will be suddenly stopt in the latter, and will rise in the second vertical tube to a higher level than that which it occupied in the former. Thus, t t', fig. 12, is the horizontal tube in which the water, descending from the reservoir, acts with a velocity depending on the height of the fall. This water tends to flow through the orifice v, which opens a communication with the natural level n, below the fall. But its momentum acquired from the fall shuts the valve s, and the water, unable to escape through v, runs through the tube z, rises in u, opens the valve c, and runs through the air-vessel $h\ h'$ into the vertical tube $d\ e\ k$ to a higher level than its original source. When the valve c is closed as well as the valve s, the water from the reservoir communicates with the lower level n. But the force of the falling water soon raises again the valve s, and the motion of ascent through the air-vessel recommences. In this vessel, the air acts like a spring on the surface of the water, and keeps up a continued flow of water in the ascending tube. The

Fig. 12.



air-vessel is furnished with a snifting-valve, p, for the admission of air when required.

The form of the hydraulic ram may be varied, according to the situation in which it is to be placed. Several specimens of this machine were to be seen in the Great Exhibition. Fig. 13 is a representation of that exhibited by Mr. Freeman Roe, of the Strand.

Fig. 13.

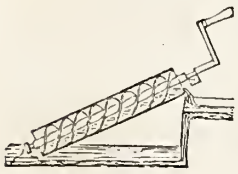


Under the first class of hydraulic machines, of which the most important have now been described, might be classed the steam-engine invented by Captain Savery at the close of the seventeenth century; but we refer our readers for a full description of this machine, accompanied with engravings, to the History of the Steam-Engine, just published as the 22nd volume of the series entitled, "John Cassell's Library."

In the second class of hydraulic machines, one of the most ancient is the *screw of Archimedes*, represented in fig. 14. It

was used for raising water and draining land in Egypt about two centuries before the Christian era. It consists of a hollow or tubular screw, formed round a cylinder, which revolves on a spindle inclined at an angle of about 45 degrees to the horizon. The extremities of he spindle rest on pivots, and the whole is made to revolve by means of a winch. The lower end of the tube being immersed in water, this liquid will flow to its level within the tube, and occupy the lowest bend. When the cylinder turns round, so as to raise the lower end of the tube, the water which has entered it will descend by its weight, and flow into the next bend. The lower end of the tube will then take up a second charge of water, like the first, which will be carried into the second bend by the revolution, while that in the second will be transferred to the third, and so on, till the water successively reaches the higher end of the tube, and is discharged into the upper reservoir.

Fig. 14.



The *Persian wheel*, represented in fig. 15, and described by Vitruvius, consists merely of a ring or circular frame of wood, supported by arms or spokes from a central axle or gudgeon, on which it revolves vertically. On its circumference are hung a number of buckets, by iron loops, on round iron bolts, so that their heaviest parts may be below, and that they may constantly hang vertically as the wheel revolves. These buckets are successively carried, by this revolution, below the level of the water to be raised. They are thus filled, and are carried in turn to the highest point in the wheel, where they all come in contact with the side of a cistern or reservoir, by which they are tilted and emptied into it. They then descend empty, and are filled again successively, to be emptied as before.

Fig. 15.

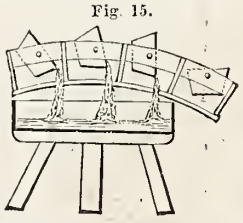
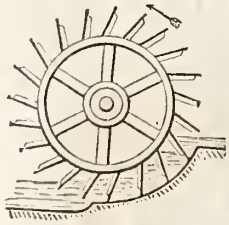


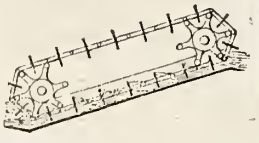
Fig. 16.



A *flash-wheel*, or a wheel furnished with vanes or float-boards projecting from its circumference, and revolving vertically, in a mill-course, is employed in cases where water is required to be raised but a small height. It is represented in fig. 16, where the arrow indicates the direction of the motion. This mode of raising water has the great inconvenience of acting by impulse—a disadvantageous mode of employing power.

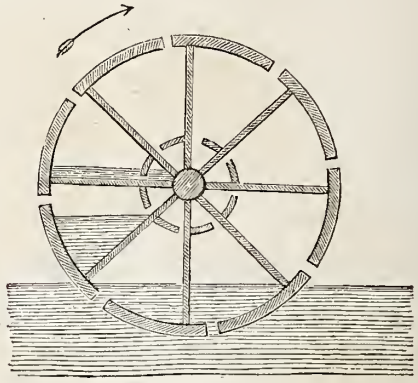
A machine like an inclined chain-pump, without the cylinder, and having float-boards instead of pistons, is sometimes used in the same manner as the preceding machine, and for the same purpose. It is represented in fig. 17, and is called, on the continent, *chapelet incliné*, or *slanting paternoster-work*. It is liable to the same objection as the flash-wheel, with the addition of the great friction arising from the axles and drums round which the float-boards revolve.

Fig. 17.



Of all the ancient machines for raising water, it appears that though the screw of Archimedes was the most curious, the *tympanum of Vitruvius* was the most effective; it is represented in section in figure 18. This machine consisted of a large hollow wheel, or drum, made of several planks joined together, and turning on a horizontal axle. The interior is divided into eight equal spaces by partitions radiating from the axle; each space or cell has an orifice of about half a foot in the rim of the drum, so formed as to give ready admission to the water; there are also eight hollow channels running parallel to the axle of the wheel, each corresponding to one of the large cells. As the wheel revolves, the water raised in these cells runs into the channels, and escapes through orifices into a reservoir placed under the axle. Thus, the water is raised through a height equal to the radius of the wheel. The chief defect of this machine arises from the water acting at a mechanical disadvantage in its rise through the effective quadrant.

Fig. 18.



The tympanum of M. de Lafaye, was invented by him in 1717, to remedy the defect of the preceding machine. It is represented in fig. 19, and constructed on the following principle. Having an axle whose circumference a little exceeds the height to which the water is to be raised, let a thread wrapped round it be gradually unwound, and the form of the curve described by its extremity be carefully traced; this curve is called the *involute* of the circle from which it unwound. Make a curved canal of the exact form of this involute; then, if the further extremity of this canal be fixed in the circumference of the tympanum, and the other extremity made to abut upon the axle, the water, in the course of its rotation, will rise in a vertical direction, tangential to the axle, and perpendicular to the canal, in all possible positions. Thus the weight, acting, as it were, always at the extremity of a horizontal radius, will be the same as if it acted upon the invariable arm of a lever, and the power which raises the weight will be always the same; and if the radius of the wheel, to which this hollow canal serves as a bent spoke, be equal to the height to which the water is to be raised, and consequently equal to the circumference of the axle, the power will be to the load of water as 1 to 6·2832. The inventor proposed four of these canals in his tympanum, though it has often been constructed with eight. By this construction, the weight to be raised always offers the same resistance, and that the least possible, while the power is applied in the most advantageous manner. In practice, this machine is decidedly superior to Archimedes' screw, or to the old tympanum machines, to which it bears a strong analogy.

Fig. 19.



The species of chain-pump called *noria*, consists of a cord or endless chain, which revolves round two pulleys or drums placed vertically above each other, and to which buckets are attached. The lower pulley is sometimes fixed as represented in fig. 20; sometimes it is only supported by the cord, and loaded with a weight sufficient to keep it stretched; and sometimes this pulley is suppressed as represented in fig. 21. The utility of the noria depends chiefly on the construction of the buckets, the chain, and the wheels which support it. It depends also on the manner of emptying the buckets. The common chain-pump, called by the French, *chapelet vertical*, differs from the *noria* in this, that the buckets are replaced by pistons fixed to the endless chain, and by a fixed vertical tube in which the chain moves in its ascent.

Fig. 20.

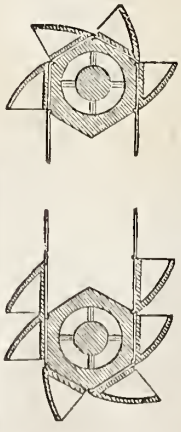
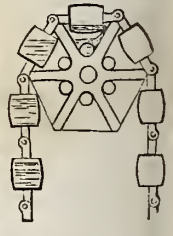


Fig. 21.



THE FOUR AGES; FROM DESIGNS BY T. JOHANNOT.



II.—YOUTH.

The word youth, by itself, speaks volumes. It does not need the illustrations of a cunning hand to explain it to any one of us, though it may afford pleasure to see well-remembered scenes or long lost joys brought again vividly before us by the aid of the artist's pencil. It comes alike to all, the best period of men's lives, and yet too often the worst spent, and most foolish. The helplessness and imbecility of infancy has passed, and an unknown world, and golden dreams, burst upon us. To the child, life was still a mystery. Like the first appearance of a dissolving view, only the vague outlines were seen dimly, and without distinctness, and his weak reason needed guidance and direction. But now the full tableau lies before him in its glory. He has climbed the mount, and before him is the promised land, and his eager spirit bids him enter in and take possession. It

is in youth that most courage and self-confidence is to be found, because it has all the fire and vigour of manhood without the experience of age. It is experience which damps the ardour of men who have arrived at mature years. Time is the great trier of strength and calculator of chances. One defeat prevents a thousand failures afterwards, and teaches salutary lessons in the economizing of strength and resources.

The Greeks made youth a smiling, graceful, rosy-cheeked maiden, Hebe, the cup-bearer of the gods. In Rome she was called "Juventus;" but the form in which she was worshipped by the people was the same, and the adoration paid her was equally sincere and devout. In the graceful spirit which animated the mythology of Greece, each deity was but the embodiment of a principle, and the web of fiction woven around it, was often but a commentary on a great truth. The cheerfulness and hopefulness of the young gave Hebe the fabled power of bestowing on her votaries unfading charms of mind and body. The elasticity of spirit which diffuses happiness on all around, made her the dispenser of the nectar of the immortal gods. And she was crowned with the rose, the flower of loves, "*tó rodon tó tōn erōtōn*," because in the summer of life, pleasure is not long sought alone, but the heart feels a craving for some one to love, some one to sympathise with, which dies out long before we reach the goal of our earthly race. A modern poet, who, though he pours forth his melodies in a foreign language, has touched many a chord to which English hearts can fully respond, won his bride by his fine embodiment of that vague but pure and beautiful sentimentality which all men experience in their youth. Lamartine was wandering alone one evening in July, when he heard a fine female voice singing with a foreign accent one of his own verses—

> "Peut-être l'avenir me gardait-il encore,
> Un retour de bonheur, dont l'espoir est perdu
> Peut-être dans la foule une âme que j'ignore
> Aurait compris mon âme, et m'aurait repondu."

The soul of the poet was the one of which the fair *chanteuse* was singing. He had found a second Elvira in a rich and beautiful English lady. He introduced himself, and as lovers had seldom met under happier auspices, we need hardly say they were married.

No wonder, then, that Hebe was crowned with roses, and that the Muses never sang so sweetly as when they traced the progress of true love through its rough and often tortuous course.

Youth and Love were always present together to the mind of the ancient artist, and to them he never failed to add Beauty. In later times we have not forgotten his lessons, though we cannot now understand, or rather, *feel*, their mythology as the ancients felt it, a great, but symmetrical allegory, pregnant with sublime meaning, though often overloaded with phantasies and mysticism. We have, therefore, in many instances cast aside the forms in which they embodied abstract conceptions, and copied from real life. Youth and beauty, and all their attendant pleasures and delights, stand before us as young men and maidens singing in the shade or dancing on the green. Music, and poetry of words and of motion, are there to lend grace and enchantment to the scene, and Knowledge too is opening her stores, and tempting the aspirant to cherish up hopes of future fame, which, alas, are so often destined to die long ere the summer is past. The artist has caught the spirit of the old poets, and has well depicted that intoxication of love and pleasure which, while it lasts, may truly be called delirium. It was not, however, difficult to do so, for the scene before us is just such as has been occurring ever since the world began, and shall be till its close—

> "That part of paradise which man
> Without the portal knows."

But in calmer moments, life assumes before the vision of youth a more sombre aspect, becomes real and earnest, is divested of the flowery meads with which in the first moments of rapture it seemed surrounded, and becomes, with startling rapidity, a march, a bivouac, a battle-field, a voyage, or a steep and rugged ascent, crowded with anxious faces, mortals struggling for subsistence, and wealth, and fame, or honours, and grown selfish and hardened by contact with one another. Here is no dreaming, no inactivity, no castle building.

> "Love and hope and beauty's bloom,"

are not seen in the broad highway amongst the busy crowd. They who seek them must turn aside to quiet nooks and shady groves, and even there must not linger long, lest they be left far behind in the race.

In youth then we are still on the 'vantage ground. There is still time to pause and think, to look down calmly on the surging masses below, to mark the thousand crimes and follies that lure men to their doom, to select the course that leads to lasting fame, to choose a partner to cheer and support in the toils and disappointments of the journey, and soothe the pangs of bidding an eternal farewell to the "happy fields and pleasing shades" so truly "beloved in vain." Once entered upon that boisterous struggle, there is no return. To bear us through it well, there needs but faith, and hope, and charity; faith in God and in our fellow men, and hope beyond the grave—a mind stored with the lore of ages, and disciplined to arrange and preserve all it gathers; the high principle that scorns seeming, and the acuteness to detect, and the courage to expose humbug. Some men have achieved wonders ere the race was well begun. Pitt was the leader of the mightiest and most eloquent assemblage in the world at twenty-three, and Chatterton had achieved a lasting reputation in the most difficult walk of literature while yet a boy. Instances like these might, of course, be multiplied in sufficient numbers to fill a page—but for what good? Men are not born to be as good or better than others, but to be as good as they can *absolutely*. Comparisons are useful to shame the wicked into virtue, or the lazy into work, and examples are often opportunely cited to cheer the drooping courage of the struggling. All men, happily for mankind, cannot either be Pitts or Chattertons, but every one's conscience tells him truly whether he is fulfilling to the best of his ability the part assigned him by his Maker. Youth is above all things the season of preparation. Upon the way in which we employ it depends our after success or failure, whether we do nothing well, and live a life of galling mediocrity, or climb to the top of the ladder. Let us beware of the poetry and flowers, love and the music and the dance, and not drink *too* deeply of the enchanted fountain. They are all good and useful at proper times, and in proper places, but

> "Not enjoyment and not sorrow
> Is our destined end or way;
> But to act that each to morrow
> Find us farther than to-day!"

It is not the part of the artist to depict things as they ought to be, but as they are. His mission is to take care of the beautiful, for the useful takes care of itself. He does not therefore moralise with the pencil, as we do with the pen. He furnishes forms that are radiant with purity, beauty, and truth; it is for others to reflect upon them. There are "tongues in trees; books in running brooks; sermons in stones, and good in everything." While we admire we may learn; and whilst we turn fondly towards the scenes from youth, we may, after a moment's pause, gaze forward more hopefully to the future. Let us not look mournfully into the past; it comes not back again. The thread of our lives has not yet been spun out. The three grim sisters may still pursue their plodding task, and stay the stroke a little longer that bids hope and care alike be still. A mightier Being than they has the future in his keeping; to us he has committed the present, to do with it as we please. The past may be lovely to look upon, like the receding shore of his native land to the departing exile; and the future may be pleasant to dream of, like the Eldorado to which he is hastening: but it is the present only that we can use and enjoy. And while we are wise, let us also be merry. Cheerfulness should be our normal state; we should be ever more disposed to laugh than weep, and endeavour to keep intact for ever the youth of the soul. *L'ame ne peut vieillir*. Empires may pass away, and generation after generation sink to dust, but our inner being should not partake of the decay and infirmities of our mortal body. It is a part of Him in whose sight a thousand years are but as yesterday when it is past, and as a watch in the night.

BUONAPARTE GOING ON BOARD THE BELLEROPHON.

With the incident illustrated in our engraving, may be said to have opened the last scene in the most remarkable drama which has ever occurred in the history of the world. Finding it impossible to re-organise an effective army after the defeat at Waterloo, Napoleon summoned the Council of State on the morning after his arrival in Paris, to advise upon the necessary measures, and found that the general voice recommended his abdication. He said little, and dissolved the council without announcing his decision. His own words afterwards to Las Casas, at St. Helena, furnish the best exposition of his feelings during the night which followed: "In that night of anguish and uncertainty I had to choose between two great courses; the one was to endeavour to save France by violence, and the other was to yield to the general impulse. Friends and enemies, the good and evil disposed, all were against me, and I stood alone. I was on the point of declaring myself permanently at the Tuileries, with my ministers and councillors of state. I had thoughts of rallying round me the six thousand guards who were in Paris, augmenting them with the best disposed portion of the national guard, who were very numerous, and the federate troops of the faubourgs,—of adjourning the chambers of legislature to Tours or Blois,—reorganising before the walls of Paris the wrecks of the army, and thus exerting my efforts singly, as a dictator, for the welfare of the country. * * * I hesitated long,—I weighed every argument on both sides; and I at length concluded that I could not make head against the coalition without and the royalists within. Abdication, therefore, was the only step I could adopt." Accordingly, on the following morning, the 22nd of June, 1815, this decision was communicated to the chambers, and on the third day after Napoleon left Paris for Malmaison. The rapid advance of the allied armies now compelled him to hasten the arrangements for his contemplated escape to America; and for this purpose he set out for Rochefort, where two frigates had been placed at his disposal by the provisional government. In the meantime, however, the news of his abdication had reached London, and the whole western coast of France was immediately blockaded by English cruisers to prevent his escape. The harbour and roadstead of Rochefort were watched by the "Bellerophon," a seventy-four, commanded by Captain Maitland, who had received orders to look out for and intercept the ex-emperor, and, in case of success, take him to England with all possible expedition. Louis XVIII. had re-entered Paris on the 8th, and the necessity of escape became every day more pressing. Accordingly on the 10th of July, Savary and Las Casas, two of his former officers, who had committed themselves to the fallen fortunes of their sovereign, were despatched to Captain Maitland, under a flag of truce, to inquire whether he had any knowledge of the passports which the emperor expected to receive from the British government, or whether it was its intention to throw any impediment in the way of his voyage to the United States. Captain Maitland replied that he had no knowledge of the passports, and that he could not permit any ship of war to leave the port of Rochefort, nor could he suffer any neutral vessel, as they had proposed, to pass with a personage of such importance. The succeeding days were passed by Napoleon in the consideration of various plans of escape. After duly weighing them all, none was found practicable, and a negotiation was again opened with the commander of the "Bellerophon," with a view to his going to England and seeking an asylum there. Captain Maitland was not free from ambiguity: "If he chooses to come on board the ship I command, I think, under the orders I am acting with, I may venture to receive him, and carry him to England." Napoleon now finally made up his mind to place himself on board the British ship, and accordingly prepared for carrying this intention into effect on the following morning. At the same time he despatched Gourgaud with a letter to the Prince Regent, in which he said, "I come, like Themistocles, to throw myself upon the hospitality of the British people. I put myself under the protection of their laws, which I claim from your royal highness, as the most powerful, the most constant, and the most generous of my enemies." The manner in which this appeal was answered is but too well known, and forms one of the darkest stains upon our nation's glory.

At daybreak, on the 15th July, 1815, Napoleon embarked on board the French brig Epervier (which is seen to the right of the "Bellerophon"), accompanied by his suite. When Captain Maitland saw the brig approach, he sent his barge to meet it, and bring the emperor on board. On its return, General Bertrand first ascended the ship's side, and was followed by Napoleon, whom the illustration shows stepping from the barge to the gangway. When he reached the quarter-deck, he pulled off his hat and said to the commander, "I am come to throw myself on the protection of your prince and laws." The captain then led him into the cabin, which was given up to his use; and afterwards, at his own request, presented all the officers to him, and he went round every part of the ship during the morning. About noon, on the following day, the "Bellerophon" got under weigh, and made sail for England. The voyage was tedious, and Napoleon spent much of his time in reading. On the 23rd July, the ship passed Ushant; the emperor cast many a melancholy look at the coast of France, but said nothing. At daybreak, on the 24th, they were off Dartmouth. Bertrand went into the cabin, and informed Napoleon, who came on deck at half-past four in the morning, and remained on the poop till the anchor was dropped in Torbay. An officer immediately came off with admiralty despatches, strictly forbidding any communication with the shore; but no sooner was it known that Napoleon was on board, than the "Bellerophon" was surrounded by a crowd of boats filled with people of all ranks eager to gain a sight of the illustrious stranger.

On the 26th, the "Bellerophon" was ordered round to Plymouth Sound. Upon its arrival there, two frigates took up anchorage on each side, and a strict watch was kept day and night. No shore boat was permitted to approach within cable's length of the ships. Nothing, however, deterred people of all ranks, and of both sexes, from striving to get a view of Napoleon. They flocked to Plymouth from distant parts of England, and engaged boats at any price to take them within view of him. On one occasion, Captain Maitland says he counted upwards of a thousand, each containing, on an average, eight individuals. As the report that he was to be treated as a prisoner became confirmed, testimonies of respect and sympathy towards him increased. When he appeared, the men uncovered their heads, and frequently cheered him, and red carnations were extensively worn, as being one of his colours. On the 31st, Sir Charles Bunbury and Admiral Keith came on board to communicate to the emperor the resolutions of the English government respecting him. Having heard the despatches, he then, with great calmness of manner and mildness of countenance, declared that he protested against the orders which had been read. "I am come," he said, "voluntarily, to throw myself on the hospitality of your nation; I am not a prisoner of war, and, if I were, I have a right to be treated according to the law of nations." In referring to the gratuitous humiliation inflicted by the English ministry in deciding that he should be treated merely as a general officer, he spoke with much feeling about the insult thus thrown upon a fallen foe: "I was emperor," he said, "acknowledged by all the powers in Europe, excepting Great Britain; and she had acknowledged me as Chief Consul. I am prince, or Consul, and ought to be treated as such, if treated with at all." Shortly afterwards, he wrote a second letter to the Prince Regent, and drew up a formal protest against his proposed banishment to St. Helena. No answer, however, was ever returned either to his letters or protests. Amongst other plans devised in his favour, by his sympathisers on shore, the following is worth repeating. A London newspaper, in ignorance of the law, suggested that he should be got on shore by means of a Habeas Corpus (which does not extend its influence over prisoners of war). This hint, though not acted on, suggested to an individual who was prosecuted for a libel upon a naval officer, the idea of citing Napoleon as a witness, to prove the state of the French navy, which he affirmed was necessary in his defence. Armed with a writ for this purpose, the

party in question came to Plymouth to serve it on Admiral Keith; who, more of a sailor than a lawyer, no sooner heard that he was being sought with this object, than he hurriedly fled from his house at Plymouth, and got on board the "Tonnant," lying in the Sound. His dreaded pursuer followed, and as he attempted to board the ship on one side, the admiral got out at the other, and rowed off at full speed in his twelve-oared barge. The man of law hotly pursued, and the alarmed admiral only escaped through the greater swiftness of his boat.

It was now announced that the "Northumberland," bearing the flag of Admiral Cockburn, was appointed to carry Napoleon to St. Helena; and that ship made its appearance on the 6th of August, attended by two frigates. Napoleon received the intimation without further remonstrance, and from this time submitted with firmness to his fate. As he was permitted only to take with him a selection from his suite, he chose counts Bertrand, Montholon, and general Gourgaud, to whom he was allowed to add count Las Casas. The following da was appointed for the embarkation in the "Northumberland." Soon after breakfast it was announced that the admiral's barg was in waiting, and after a polite and friendly farewell to Captai Maitland, he descended the gangway with a firm and steady ste



NAPOLEON BUONAPARTE EMBARKING IN THE BELLEROPHON.

The parting on board the "Northumberland" from those of his suite who were not permitted to share his exile was painful in the extreme; Savary and Lallemand wept like children. The ship sailed soon after, and about the 16th passed Cape la Hogue, when Napoleon took his last look at France. On the 16th of October he landed upon the dreary and miserable rock which was henceforth to be his prison, "and thus," says Scott, "the emperor of France, nay, welnigh of Europe, sunk into the recluse of St. Helena." Here, to the further and ineffaceable disgrace of the English government, he was subjected to vexatious and insulting restrictions as cruel as they were unnecessary, until death ended his sufferings and his humiliation on the 3rd of May, 1821. In his will he had expressed a wish that "his ashes should repose on the banks of the Seine, in the midst of the French people whom he had loved so well;" but for nearly twenty years he lay buried in a spot near Longwood, the place of his residence in the island. In 1840, however, his last desire was fulfilled, and the church of the Invalides now contains the ashes of

——— "That wondrous man!
Whose daring spirit, with volcanic rage,
Breathed flame and ruin on the affrighted world.

BALLOONING.



ASCENSION OF MADAME SAGE, CHEVALIER BIGGIN, AND CAPTAIN VICENTE LUNARDI, IN A BALLOON, JUNE 20, 1785.
FROM A CONTEMPORARY ENGRAVING.

No modern discovery in science produced so great a sensation as that of ballooning or aerostation, in the year 1785; and yet there is not one which has been so barren of useful results. Locomotion both by land and water has made astonishing progress within the last century, but nothing has been achieved in air navigation beyond a little greater security, and the power of ascending or

descending at pleasure. The voyager is perfectly at the mercy of the currents of air as to the direction he shall take, and must trust to chance for reaching a safe landing-place;—so that the present position of aeronautics may be compared to that of sea navigation when the first adventurous mortal committed himself to the treacherous deep in the hollowed trunk of a tree. This would form a matter of surprise, considering that the ablest scientific men have given their attention to the subject, in the hope of turning ballooning to some practical account, and making it serviceable to social progress and civilisation, did we not remember that the aeronaut has to trust completely to the caprices of one element. The seaman is enabled to make *two* subservient to his will by opposing their forces. The action of the wind upon his sails is controlled and regulated by the action of the rudder on the water. It is this difference which destroys all analogy between the two modes of sailing, and renders the rules and experiences of the one totally inapplicable to the other, and will, doubtless, for long enough leave aerostation, in the hands of harebrained adventurers, a means of amusement for crowds at public fêtes.

From the remotest ages of antiquity men seemed to have entertained the desire to imitate the flying of birds, and their ingenuity was, therefore, for two thousand years and more taxed to produce wings that would elevate them in the air. To enumerate all the ridiculous experiments that were made with this view, would be neither interesting nor instructive. It is a striking instance, however, of the length of time that a simple truth may remain before men's eyes before it is laid hold of; and of the want of experimental research amongst the ancients, that the physical law upon which all ballooning must depend—that every time that a body is plunged in a fluid heavier than itself it will float, was entirely overlooked. Their whole attention was directed to the making of strong wings, like those of birds, forgetting that, even if they had the immense muscular power necessary to work them, the buoyancy which birds possess by means of the immense number of minute air cells diffused all over the body, would be wanting.

It is in virtue of this law which we have mentioned, that a cork floats on the water, and that a cannon-ball floats in mercury, and also that a cloud floats in the air, but with this difference in the last instance;—the cloud does not float on the *surface* of the atmosphere, but at a height where a volume of air equal to itself in size is also equal in weight. Liquids can be but slightly compressed in bulk, but it is not so with air; for the atmosphere close to the surface of the earth, having to support all the weight of the upper strata, is much heavier than the air at any other part. That is to say, if you take a cubic foot of air close to the earth's surface, it will weigh much more than a cubic foot taken at an elevation of 10,000 feet, because it is much denser. If, then, you set at liberty at the surface of the earth a body lighter than an equal volume or bulk of air, it will rise rapidly. But as each successive stratum of air becomes lighter and lighter the higher it goes, it will at last reach a position in which the volume of air equal to itself in size will only equal it in weight also, and there it will stop. The whole theory of ballooning rests on this simple fact.

A Jesuit named Lana, who lived in 1670, was the first who attempted to turn it to any account. He proposed to raise a vessel by means of metal balls, strong enough, when exhausted, to resist the pressure of the outward air, but still thin enough, in the same circumstances, to render them lighter than their bulk of air. It is now very well known that it would be impossible to combine the two qualities of thinness and strength in the degree necessary for such a purpose; but this was not the obstacle which suggested itself to the good father's mind, but another and very different one, certainly not more ridiculous than those which many brainless, but well-meaning people at the present day attempt to throw in the way of scientific progress. He had no doubt whatever, that so far as physical conditions were concerned, the experiment would be perfectly successful, but he felt assured that God would never allow an invention to succeed which might so readily be made use of to disturb civil government!

In 1782, however, two brothers named Montgolfier, manufacturers of Annonay, a town in France, near Lyons, taking a hint from Lana, and the common experiment of soap bubbles, made the first balloon. They were paper makers, and at first conceived the idea of filling a large paper envelope with hydrogen gas, which, as doubtless most of our readers know, is considerably lighter than atmospheric air. But they soon found that the hydrogen tore the paper, and this plan was therefore abandoned. It appears that they were under the impression that the clouds owed their buoyancy to the influence of electricity, and that electricity diminished the weight of bodies to which it was applied. They, therefore, determined upon lighting a fire under a balloon, not to rarefy the enclosed air, but to increase the electricity of the vapour in the interior. They constructed for this purpose a balloon, having the form of a spherical globe, thirty-three feet in diameter, and one hundred and ten in circumference, and capable of containing twenty-two thousand cubic feet (French). It was made of canvas, with doubled paper, and weighed rather more than five hundred pounds. Under the opening at the bottom a fire of straw was lighted, which soon introduced twenty-two thousand cubic feet of heated air, which was consequently much lighter than the air around; for, as most of our readers are doubtless aware, one of the properties of heat is to cause any body to which it is applied to expand, and make it occupy a larger space than when cold. Thus a volume of air heated to the temperature of boiling water is 37-100ths larger than when at the temperature of zero, and is almost twice as large when at 482° F. This then, had, of course, a great tendency to rise, and had no resistance to contend against except that made by the weight of the balloon itself. But as soon as it had become so light that its own weight joined to that of the covering was less than that of an equal volume of the external air, the balloon, of course, rose majestically, although Montgolfier had mistaken the agency which he employed. The success of this experiment caused it to be repeated in various parts of the country; and in October, 1785, Pitatre des Rosiers and the Marquis d'Arlande ascended with great intrepidity, in a basket attached to the balloon, to the height of between three and four hundred feet. The balloon, however, was fastened to the earth by ropes.

It appears that the brothers Montgolfier did not attach any extravagant or visionary ideas of importance to their invention. With the modesty and simplicity characteristic of men of science, the limits they assigned to its usefulness were the relief of a besieged town by sending in provisions, the raising of wrecked vessels, the reconnoitring of the position of an army or of vessels at a great distance. It was applied to one of these purposes by the French at the battle of Fleurus, who prevented a surprise by means of it.

Many other ascents were made, displaying a greater or less amount of hardihood, but great fears were still entertained that at some time or other the balloon might take fire and precipitate the unfortunate voyagers to the earth. This did occur in one instance, when two persons were killed. Invention was therefore for some time on the rack to discover some means of ascent that would obviate the necessity of taking up lighted fuel. M. Charles at last conceived the idea of making the balloon of silk, and inflating it with hydrogen gas, a body five times lighter air. An experiment made on this plan on the 27th August, 1785, succeeded completely, and from that moment aerostatic ascents lost most of the danger which had previously attached to them; and though the expense of a hydrogen balloon was much greater than a fire one, it was more than counterbalanced by the additional security afforded to the aeronaut. The process of inflation is very simple. It consists in putting a quantity of iron filings, and sulphuric acid diluted in water, in hermetically sealed vessels. The water then immediately begins to decompose; the oxygen which it gives off combines with the iron, and the hydrogen is conducted into the balloon by pipes.

Ascents were now made in rapid succession. Some took up wings and a rudder; others oars, but found them of no use. Every effort to direct their course was unavailing. During the years 1783-4 and 5, the number of ascents made in various parts of France was truly astonishing, as ballooning was then a novelty and the opinion was generally entertained that it might lead to some valuable results. In one or two of the voyages the channel was crossed with great rapidity.

The first balloon sent up in England was by Count Zambeccari

from the Artillery-ground, London. It was filled with hydrogen, and was ten feet in diameter; it was found forty-eight miles from London, near Petworth. In September, 1784, Vicente Lunardi ascended, accompanied by a cat, a dog, and a pigeon, and descended in safety at Standon, near Ware. Having acquired more confidence, he made another ascent in June, 1785, in company with Madame Sage, and Chevalier Biggin. After remaining some hours in the air, they descended safely some miles beyond Harrow, having gone over a space of nearly twenty miles in two hours. Lunardi then went up alone, and alighted again some twenty miles farther on, and having stayed a short time at the house of a friend, and taking flight once more, he passed over Chester, and landed near Taporly Castle, having travelled upwards of two hundred miles in four hours. Many engravings of this ascent were published at the time, from one of which ours is taken.

The invention of descending by means of parachutes followed closely upon that of ballooning itself, but has led to no better results. The air, as every one knows, opposes considerable resistance to anybody moving with rapidity, and the greater the rapidity the greater the resistance. Experiments have shown, that if the rapidity with which the body moves be doubled, the resistance offered to its motion by the air is quadrupled; and if the speed be tripled the resistance becomes nine times greater—or in scientific language, the resistance of the air increases as the square of the rapidity with which the body moves. Consequently, when a body falls through the air, the acceleration of speed which it receives at first gradually diminishes until it becomes uniform. The resistance increases also in proportion to the extent of the surface presented by the body in motion, so that the greater the surface of a falling body, the more slowly will it descend.

Upon these principles parachutes are constructed in a form somewhat resembling an umbrella. In 1784, some experiments were made by M. Lenormand, a professor in Paris, which seemed to promise favourably, but in 1802 Garnerin made the first serious trial of them, by descending 2000 feet in the presence of a vast crowd at Paris. After cutting the cord which united the parachute to the balloon, the former oscillated frightfully, but finally reached the earth without any accident. He repeated this feat in the Mary-le-bone Fields, near London (now Regent's Park), with the same success, but with no less danger. More recently, an unfortunate man named Cocking, attempted to descend in a parachute of his own contrivance from a balloon at an immense elevation. The machine collapsed, and he was precipitated to the earth some thousands of feet, when he was of course picked up lifeless. Since then, no one has had the hardihood to follow his example.

Three voyages have been undertaken since the commencement of the present century for scientific purposes. In 1801, MM. Gay-Lussac, and Biot, ascended at Paris to a height of 13,000 feet, provided with apparatus, and in the same year the former ascended alone to a height of 23,000 feet. They made some very important observations upon atmospheric and meteorological phenomena. In 1806, Carlo Brioschi, the astronomer-royal at Naples, and Signor Andreani, endeavoured to reach a still greater elevation, but the balloon burst in consequence of the great rarefaction of the air. Its remains proved, however, sufficient to save their lives.

Many attempts have been recently made to guide the balloon in its course, but not one has proved successful, and the public has heard so much of aerial machines that could never be got to leave the earth, of rudders that would not steer, and engines that would not work, that every one who purposes to turn ballooning to any practical good, is now looked upon as a visionary. In the search for Sir John Franklin and his gallant companions it is likely, however, to prove of essential service. Sir Edward Beecher's expedition has been furnished with a number of small balloons, to be sent up charged with a number of slips of printed paper, stating the position of the squadron, and where food may be found. These are arranged in such a way, that they become detached *en route*, by the burning of a slow match, and are scattered over the country. Let us hope that they may be the means of bringing relief to worn-out voyagers and redeem the falling fame of aerostation.

The silly exhibitions with which the public were disgusted last summer, by fools ascending on the backs of ponies and other animals cannot be too strongly reprobated and condemned. They serve no one purpose of instruction or legitimate amusement, while they feed the depraved taste for strong excitement, which is one of the worst features in the moral constitution of the lower classes at the present day. It is evident that aerostation, as now practised, promotes no good, and places lives in unnecessary danger, and certainly should be placed under more watchful supervision by the authorities.

MESSRS. ELKINGTON, MASON, & CO.'S ELECTRO-PLATE WORKS,

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If one striking feature of the present times is, that vast establishments for business spring up, like the gigantic oaks which fairy tales describe as having grown in a night, another is not less remarkable, that many of them originate in the practical application of some principle which science has but recently developed; and of both, the manufactory now to be described affords a deeply interesting exemplification.

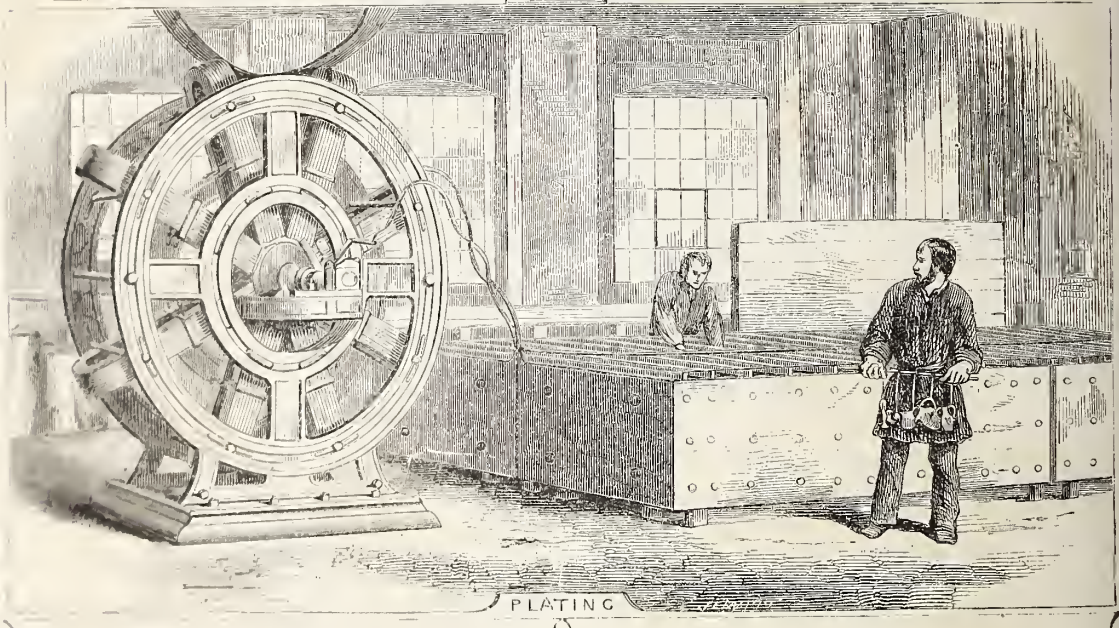
It is now regarded as an established law, that, wherever chemical action occurs, there is a disturbance of the electric equilibrium, and the consequent development of free electricity. Electricity is also constantly elicited when different metals are brought into contact with an intervening fluid. Thus, a singular sensation is produced by making a piece of zinc and a piece of copper meet over the moist tongue, when placed in the mouth; and if two plates of these metals are merely pressed together and suddenly separated, they assume opposite electric states—the zinc being *positive*, and the copper *negative*, the former acquiring *more* than its natural quantity of electricity, and the latter suffering some diminution of it. If, too, a plate of pure zinc is dipped into a glass of very dilute sulphuric acid, little or no action is observed, nor does anything happen when a similar plate of silver is placed in the same glass, provided the metals be kept apart from each other. But if the zinc and the silver be brought into contact at their extremities out of the liquid, the water is decomposed; its oxygen combines with the zinc to form oxide of zinc, which is dissolved by the acid; and its hydrogen passes over to the surface of the silver, where it collects, and ultimately escapes in gaseous globules. Meanwhile, a continuous current of electricity is passing from the zinc across the water to the silver, and again from the silver, by metallic contact, to the zinc.

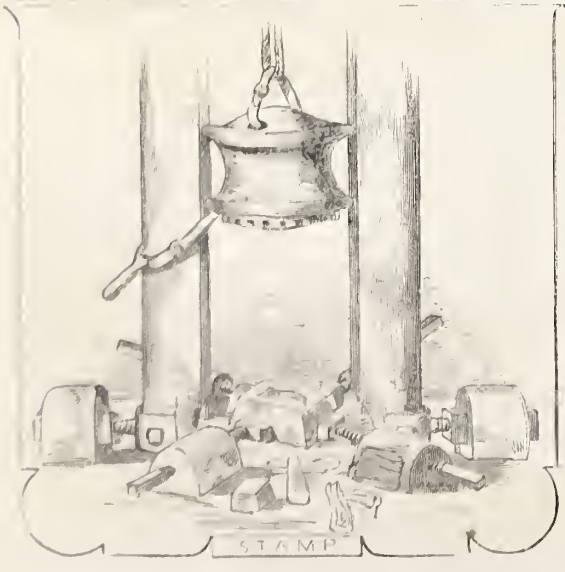
The observation of this electric action led to the construction of a battery, a familiar form of which is a series of zinc and copper plates soldered together, and placed in a trough with intervening cells, which, when action is required, are filled with proper acid or saline solutions. On this arrangement various improvements were made; but in them all the electric power was liable to fluctuation, while various causes induced such a falling off of its evolution as to render such batteries inconvenient or even useless, where continuous or regular action is required. The most important modification of this instrument was therefore, at this period, the one devised by the late Professor Daniell, and which he termed a "*constant* battery."

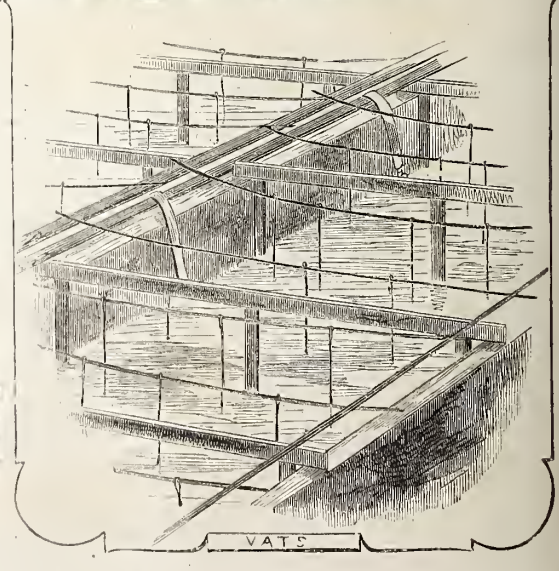
In the use of this battery a most important and valuable discovery was made. One of the liquids employed was a solution of sulphate of copper, and as an electrical current passed through it, the sulphate was decomposed; and the copper, separated from the acid with which it had been combined, was deposited in a very fine metallic state on the inner surface of the vessel that contained the liquid. It was afterwards found, on removing such a film of copper from the vessel, that it presented an exact counter-type of the surface on which it had been cast, when separated from the acid by electrical action.

The discovery was speedily turned to account by various persons; and if our readers made no experiments of the kind—of









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which, indeed, we can scarcely conceive—they will not fail to remember how eagerly, only a few years ago, their sons, or their younger brothers were intent on taking impressions from coins, medals, casts, and a great variety of other objects, by means of some small battery which, at first, a few shillings, and subsequently a very trifle, would purchase.

Scarcely twelve years have elapsed since the various objects coated with copper by the aid of electricity, were shown as curiosities, and the many considered the application of the process to any useful purpose as more than doubtful. Yet, in 1836, a patent was granted for electro-plating, to Messrs. Elkington, of Birmingham, both in England and France. The patent was most severely contested in France, but after having been tried in a variety of forms before all the courts of law in succession, the right of the patentees was finally secured. Since that time the electric process has become a most important branch of industry, and is rapidly increasing. The patentees employ upwards of five hundred work-people, and necessarily, some of the first designers of the day. In addition to their immense production of electro-plated goods, the process is extensively adopted in France and in other foreign countries; and there are about thirty other manufacturers in England licensed to use the process, Messrs. Elkington & Co. having, of course, no control over the quality of the articles produced by these parties.

The art of over-laying, for economy's sake, one metal with another more valuable is, indeed, of great antiquity, but the application of silver or gold to an inferior material appears formerly to have been by some process analogous to washing or gilding, or by affixing sheets and foils in some less adhesive manner. The art of plating with silver or copper, as afterwards practised, originated in the metropolis, and, as one authority states, was subsequently removed to Birmingham and Sheffield; while another declares that Mr. Thomas Bolsover, an ingenious mechanic of the latter town, when employed in repairing the handle of a knife, composed partly of silver and partly of copper, was struck with the possibility of uniting the two metals, and began a manufacture of articles made of this combination. Others speedily entered into his labours, and the plate manufacture of Sheffield attained high and deserved celebrity.

An ingot, formed of copper and brass, about twenty inches long, three broad, and one and a half thick, had a sheet of silver, about one-fortieth its thickness, laid upon it when duly cleaned on one side for single, and on both for double plating. The two metals being tied together with wire, touched at the edges with a little borax to act as a flux, and exposed to the heat of a furnace, became firmly soldered together, and the ingot was then rolled into thin sheets. These sheets were afterwards wrought into useful and ornamental forms by various means, the silver side forming the exterior surface; and a great improvement was subsequently effected when solid silver edges were added to the Sheffield plate.

It was at the time when the art had thus attained its acme that the new manufacture was introduced, which, by the very courteous permission and attentions of Messrs. Elkington & Co., we have the pleasure, both in illustration and description, of fully presenting to our readers. What has been accomplished is strikingly apparent on an inspection of their show-rooms, which, astounding as it may seem, are longer than the body of the far-famed Birmingham Town-hall, though, of course, they are not to be compared in height with that splendid pile. Glass-cases stand, as they appear in the engraving, on either side; while in the middle are three others, in which magnificent centre-pieces, epergnes, and candelabra are displayed. One of the most prominent objects is the large vase, intended to represent the Triumph of Science and the Industrial Arts at the Great Exhibition; with its characteristic statuettes of Newton, Bacon, Shakspere, and Watt; its illustrative bas-reliefs, and its figure of Prince Albert, awarding to industry the well-merited palm.* In this room there is every conceivable article which can be seen in any palace or baronial hall, as wrought in silver, manufactured in electro-plate, from a vase of gorgeous proportions and ornaments, to a tea-service, beautifully embossed and engraved; and from a cruet-stand of great elegance, to a simple knife-rest or a salt-spoon. One division of *these rooms* is appropriated to bronzes: the "Theseus," reduced from the work of "Phidias," among the Elgin Marbles, the "Venus di Medici," "Eve's Hesitation," by John Bell, with other works of modern art, a Colossal head of Ocean from the Antique, with his sea-weed beard, and other marine appurtenances of the watery god. A prominent object in our engraving is a bronze group, showing Tewdric the Great, king of Gwent and Glamorgan, who is represented as wounded, yet urging on the pursuit of the flying Saxons, attended by his daughter, and an aged bard in the act of proclaiming the victory. These bronzes have a most exquisite surface, and even the chain armour which may be seen on one figure, was untouched by the chisel.

Curiosity can scarcely fail to be excited by the inspection of objects so varied, beautiful, and splendid, as to the means by which they are produced; and this feeling we shall, therefore, proceed to gratify, by a description of Messrs. Elkington's works. The first thing, of course, in any department of their manufacture, is the design; and whether the article be a magnificent centre-piece for the queen's table, or a salt-cellar for that of one of her liege subjects, it owes its form and decorations to the fancy and taste of the artist to whom the design is entrusted. This room, then, is the first we visit; and here we see also, the modeller at work, moulding in plaster or wax, the article, whatever it may be, which the designer has previously traced on paper.

As may be readily supposed, the foundations or bodies of different articles pass through a variety of processes. Some are cast, others stamped, others are said to be "raised," while the foundation of not a few begins in the vat of solution, under the operation of the electric power. To each of these processes we shall now more fully allude.

When an article is to be *cast* in solid silver, a mould is taken from the design when wrought in plaster; of this a brass copy is made, and accurately finished, so as to form another mould; and into the mould, in either case, the melted silver is poured. But a totally distinct course is taken when the common articles of tea-services, and of other kinds, as waiters, dish-covers, &c., are to be manufactured.

That the ordinary course may be understood, let us trace the history—not a little remarkable—of a common electro-plated globular bodied tea-pot. The first thing to be done is to cut from a sheet of white metal a piece of about eighteen inches long and five and a quarter wide, and its two ends are then firmly soldered together, so as to form a cylinder, in which state it may be observed at the top of the first page of our illustrations.

After being annealed, that is, softened in a furnace, the metal cylinder passes into the hands of the "*raiser*," who, with a hammer of box-wood or buffalo-horn, proceeds, most unmercifully, as it may seem, to hammer its edges on a kind of anvil, and thus to bring it into the shape observable a little above the cylinder. It is again annealed, then reduced to the state exhibited in the upper figure to the right; and finally brought, simply by wielding the hammer, to the regular shape of the lower figure on the same side. It need scarcely be said that by this hammering, the body of our teapot only is prepared; the bottom, handle, hinge, spout, &c., are formed in a totally different way.

For all such portions of the manufacture, *stamping* is indispensable; and to the room where this process is conducted, we beg to be accompanied by the courteous reader. We have in this apartment a number of iron pillars joined in pairs, and a heavy piece of iron slides between each pair. To the upper part of this piece of iron is attached one end of a rope, which passing over a wheel at the top, has a stirrup attached to its outer end. It will be well to examine one of these stamps. On the platform and between the iron pillars, there is firmly secured a heavy piece of steel, called a die, having a form hollowed out of it, which is seen at once to be of the shape of a teapot spout. Immediately above the die is suspended the weight just mentioned, to the bottom of which is fastened a piece of metal—the reverse of the incision in the die, called "the force," and which, when the

* An engraving of this remarkable work of art appeared in the Illustrated Exhibitor for 1851.

weight is lowered so as to rest on the die, exactly fits the hollowed part of it.

All being ready for action, the workman puts on the lower die a thin piece of white metal, and presses his foot in the stirrup, thus hoisting upwards the weight, and on raising his foot, "the force" comes suddenly down, instantly squeezing the hitherto flat piece of metal into the hollow part of the die, and giving it the shape of one-half of the teapot spout. It must not however, be supposed that one blow of "the force," will produce any required shape. On the contrary, when the articles in course of manufacture are very much "raised," in other words, when the die sinks in to a considerable depth, the process is necessarily very gradual. An attempt to produce the desired effect at one blow, would inevitably tear the metal into holes. Sometimes indeed, as many as forty or fifty blows are required in the production of one article, and so hard is the metal made by two or three blows, that it is necessary to place it in the annealing furnace till it becomes red hot, and then to allow it to cool gradually, so that it may be rendered sufficiently soft for future purposes. "The force" prepared for the first few blows is made of *lead*; for those which next follow, it is made of a mixture of *lead* and *tin;* and for others in due succession, of *tin* alone, of *zinc*, and of *iron*. By thus nicely adjusting the hardness of "the force" to the state of the work, by sometimes using two or three dies sunk to different depths, and also by reserving the die which has the deepest depression to the last, articles may be produced "raised" to the extent of several inches.

Messrs. Elkington are now having a large stamping-apparatus fitted up, to be worked by steam, on the plan of Nasmyth's steam hammer, by which they will be able to manufacture articles of large size with the utmost ease. The preparation of dies is exceedingly costly; and each new pattern wanting a fresh die, the amount of capital involved in sinking dies is almost incredible. On our visit to this establishment, we saw a set for a new tea-service just arrived, which alone had cost £150. Around this stamping-shop, and the annealing furnace close by, dies are arranged of considerable cost. We give an illustration of the lower part of one of the stamps, showing the manner in which the die is secured, and also "the force" suspended above. Pieces which have undergone the process may be also observed.

The two portions of the tea-pot spout which we have shown to be stamped like the parts of a great diversity of other articles, are united by *soldering*. This process is depicted on our second page of illustration, where a man may be observed holding in his hand a brass tube, to one end of which two elastic pipes are attached. One of them which communicates with the smaller pipe seen, supplies gas; the other, which communicates with the large pipe just behind the shoulders of the workman, transmits a blast produced by the steam-engine. The gas, being ignited, is driven in an intensely hot jet by the wind, thus forming, in fact, a blow-pipe. The article to be soldered is laid on a little charcoal, to reflect the heat. The white metal used by Messrs. Elkington is of so hard a nature, that, though constantly made white-hot in this process, it never changes the form that has been given to it; whereas, if the metal ordinarily used in Sheffield plate were exposed to a similar heat, an attempt to use it in this process would be like trying to solder two pieces of butter together with a red-hot iron. But by means of the apparatus now described, articles may be combined with hard solder instead of that which is very fusible. Thus, in our illustration, the workman may be observed soldering the bottom to a little cup, holding in his left hand a piece of silver wire, with which he is uniting the two parts. In the soldering-shop the body of the teapot, whose history we are incidentally tracing, has the spout, handle, bottom, and hinge attached.

When any work is pierced, like that which appears in sugar and wedding-cake baskets, it is taken to another part of the works, where the required pattern is punched out with presses, or cut with a very fine saw. Many articles are also embossed, different patterns and projections being hammered out on them by singularly-shaped tools.

At this stage of their manufacture, the articles are taken to the *polishing*-room, where a number of small iron spindles are in motion, to either end of which is attached a small brush, resembling in shape a grindstone in miniature. The workman, taking up a handful of rotten-stone, and gradually letting it fall on the brush, presses against this, as it rapidly revolves, the article to be polished. In the illustration at the bottom of the second page of engravings, the workman may be seen polishing some of the ornamental part of a large dish; and by the same process, articles which before looked dull and leaden, assume a bright appearance. Many of them are now ready to be transferred to the *plating*-room, but some have to undergo another process. Our teapot, for example, which must not be forgotten, requires it; for were it to be plated in the state in which it was after being polished, it would look too plain; to assume, therefore, a desirable comeliness, it is transferred to the engraver, who with tools similar to the gravers ordinarily employed, cuts out upon it a rich and flowing pattern. But the reader perhaps says, "Is it going to be silvered all over now?" We answer, "Yes!" And should it be rejoined, "But then they are going to put on a very thin coat of silver," the only reply is, "On the contrary, the silver is to be very thick." And should there follow the expression of surprise and apprehension, "Then they will stop up all the lines that have been engraved," there remains but the soothing response: "Oh, no! all the lines will remain, even the most faint and delicate, notwithstanding the thick coat of silvering, in their utmost distinctness and perfection. The effect on our teapot is as complete as if it were plated first and engraved afterwards; while by the course now pursued a special advantage is secured, as in a pattern at all deeply engraved, the workmen must cut very near to the white metal; were they to do otherwise, and on this part, a very slight coat of silver would consequently be left."

In entering the *plating*-room, it should be observed that up to a recent period, galvanic troughs were the only means employed for producing electricity. Mr. Woolrich, however, suggested the application of the Magneto-Electric power, and Messrs. Elkington have now in constant operation a stupendous machine constructed for its application, of which an engraving is given in the middle of the first page of our illustrations. The armature of the machine, set in motion by a small steam-engine, revolves six hundred times in a minute, at a short distance from the poles of a series of sixty-four permanent magnets, arranged in a circle. To give some idea of its power, we may state that it is ten times greater than that of the gigantic steam-machine at the Polytechnic Institution in Langham-place, and is sufficient to deposit fifty ounces of silver per hour. One great advantage secured by it is, the regularity of its action. An ordinary galvanic battery decreases in power most materially in a few days; while this machine has been in operation almost continually day and night for six months, with scarcely any perceptible variation in its energy.

In the illustration in the middle of the first page, the vats for plating may be seen to the right of the Magneto-Electric machine; and a little below this a bird's-eye view is given of a portion of the vats, showing the manner of placing the articles in them, and which we now proceed to describe. Across the vats may be perceived metal rods stretched from one side to the other. To these the articles immersed in the solution are attached by thin wires, and between the vats there passes a metal tube to convey the electric current to the rods just mentioned. As, however, an immense consumption of silver is thus going on, plates of pure silver are placed in the vats connected with another metal rod, conveying a negative current of electricity, which constantly, if we may use the expression, discharges silver into the solution, to be eagerly imbibed by the articles suspended in it. In this way a perfect equilibrium of strength is maintained. The process of electro-plating in gold is precisely the same as that in silver. By a recent improvement, the article, whatever it may be, is bright when it comes from the vat.

It is exceedingly interesting to witness the arrangements by which that subtle agent, formerly known only in its uncontrolled power as it issued from the thunder-cloud, becomes, in the hands of the workman, a means of accomplishing his purposes as fully and completely as any tool or implement he can possibly employ. The process of depositing the metal is gradual, and proceeds from a single point first made, until the whole surface submitted to it is coated. The aggregation of silver is continued until the desired

thickness is obtained; and in this way articles might even be made solid. To such perfection has the process been brought, that not only are silver waistcoat-buttons and exquisite pieces of *bijouterie* produced, but a statue of bronze, as large as that of the Duke of Wellington at Hyde-park Corner, could be made of any thickness merely by electrical deposits. Even flowers and butterflies may be coated with gold and silver.

The general impression may for a moment be alluded to, that, as in the case of electro-plated goods, bronze forms only a covering to another substance, while, in fact, the figures are hollow, and the entire substance employed is unalloyed bronze. To produce an electro-deposited figure, the model of it is formed, and from this a mould of fine clay or plaster is taken, the interior of the mould being thus an exact counterpart of the exterior of the model. On this being placed in a trough containing a solution of copper, the mould is rendered conducting, and the metal, gradually deposited inside the mould, becomes, in its turn, an exact counterpart of the original model. It will be understood from this brief description, that from the metal not shrinking in cooling, as in ordinary instances of casting, beauties and faults must alike be copied. The product in bronze is, in fact, an exact reproduction of the artist's conception, unalloyed by any mechanical imperfection almost necessarily attendant on the old process.

To resume our description of the manufacture of electro-plate: the articles subjected to the electro process having been washed and dried, now only want the finishing *polish*. Waiters, and other products of a similar kind, have therefore their flat surfaces placed on an anvil of glossy brightness, and are unscrupulously subjected to the violent action of a heavy hammer with an unimpeachably smooth face. The effect is to bring the silver into more close communication with its foundation of white metal, and to show the soundness of the previous work, as any flaw in it would now instantly appear. So entire is the union, that on any article being struck with the fingers, it rings like silver, and will even sustain a red heat without injury. For those who object to electro-plated goods, from an apprehension that the surface is liable to peel off, such tests, it might be supposed, would be perfectly satisfactory.

Articles after having been duly hammered are taken to the *burnishing*-room. Here are assembled from forty to fifty women, who, with small steel tools and a little water to keep them from becoming hot, give a beautiful polish to numerous articles. On a reference to the second page of illustrations, an engraving of this process will be observed. On the table appear a number of tools and of finished articles. After a little colouring with rouge, to give what is brought into this department a deep lustrous appearance, they are completed, and ready to be placed in the show-room, or to be despatched to their final destination. At the bottom of the page just referred to, may be observed the teapot whose history has been sketched, which, after having been engraved, was plated and burnished, and then had ivory placed in the handle to prevent the fair fingers by which it will hereafter be used, from suffering the slightest discomfort. It, therefore, appears now in all its charms, to attract the attention and to justify the choice of an early purchaser.

THE FIR.—No. II.



AS promised, we resume and conclude our brief sketch of the principal species of the fir tree:—

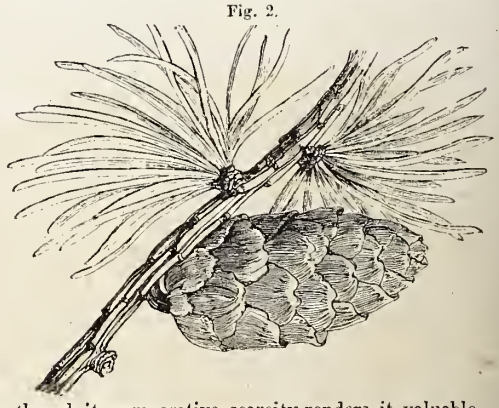
The *Pinus Canadensis*, or American and Newfoundland spruce-fir, is a native of Canada, Pennsylvania, and other parts of North America. It includes three varieties, the white Newfoundland spruce, the red spruce, and the black spruce. These, however, differ so little, that one description may answer for all. The average height attained by all three is about one hundred feet. They are of upright growth, and their leaves, like those of the Norway spruce-fir, are green, and garnish the branches in the same beautiful manner as do those of that species, only that they are narrower, shorter, and stand closer. The greatest difference between the three varieties is observable in the colour of their cones. Those of the white are of a very light brown; those of the red of a nut-brown or reddish appearance; and those of the black spruce of a dark or blackish hue. It is from these differences of colour that the threefold division of the species has arisen. The cones of all three are terminal, ovate, and scarcely longer than the leaves, which are about an inch in length. The anthers are capitate beaked; and the common filament twice as long as the bracteas. The tree flowers in May.

Fig. 1.



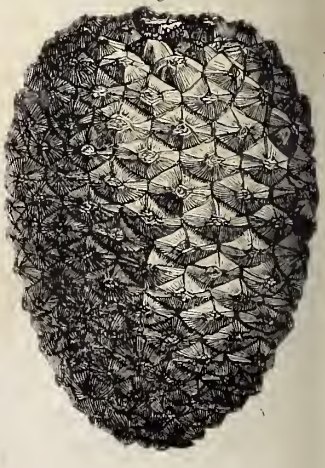
The *Pinus balsamea*, or hemlock-fir, which is a native of Virginia and Canada, is classed by some botanists under the species *abies*—which we have previously described. This tree possesses as little beauty as any of the fir tribe, though its comparative scarcity renders it valuable. It is of slow growth, and has but few branches; these, which are long and slender, spread abroad without either order or beauty.

Fig. 2.



The *Pinus strobus*, or North American white pine, called also the Weymouth pine, from its having been first introduced into Europe from America by Lord Weymouth, is a tall, slender tree of great beauty. The trunk is covered with a dark-green and very smooth bark, which, however, in old trees becomes cracked and scaly. The leaves are long and delicate, five generally growing out of one sheath. In the forests of North America these trees frequently attain a height of two hundred feet. Their

Fig 3.



cones, which are soft and spongy, are somewhat cylindrical in shape, and about six inches in length; they are covered with convex shaped pointed scales, as seen in fig. 3.

The *Pinus tæda*, or swamp pine, is a tall evergreen tree, and a native of the swamps of Virginia and Canada. There are several species of it, differing slightly from each other; but they present no features of peculiar interest to the botanist.

The *Pinus cedris*, ranked by Tournefort and some other botanists under the species *larix*, is that popularly known by us as the *cedar of Lebanon*, and called by the ancients *cedrus magna*, and sometimes the Phœnician or Syrian cedar, from the country where it grows in the greatest perfection. This magnificent tree is a coniferous evergreen, of the larger sort, bearing reddish ovate cones, covered, as seen in the engraving (fig. 1), with smooth close scales; the leaves are small, narrow, and thickly set upon the stocks of the branches. The reddish colour and strong aromatic smell of the timber of both trees has sometimes led to the wood of the cajou tree being mistaken for that of the cedar. To an unpractised eye the difference is, at first, not easily observable. The most remarkable characteristic of cedar-wood is its great duration, arising from the extremely bitter taste, to which it owes its entire freedom from the attacks of worms. For this reason the ancients used cedar tablets to write on, especially for things of importance as appears from the expression of Persius—*et cedra digna locutus*. This bitter juice was extracted for the purpose of smearing books and writings, to preserve them from decay. We are told by Pliny that it was by this means that Numa's books were preserved entire to the year 535. It was of the wood of this tree that, as the reader knows,



Fig. 1.



Fig. C.

Solomon's Temple and Palace were constructed. Cortes is said to have built a palace at Mexico, in which, as we are informed by Herrera, were seven thousand beams of cedar, most of them being one hundred and twenty feet long, and twelve feet in circumference. The mainmast in the galley of King Demetrius was a single cedar tree. Le Brun assures us that the two largest which he saw on Mount Lebanon measured, respectively, fifty-seven and forty-seven palms in circumference. In the Temple of Apollo at Utica there were some cedar trees said to be nearly two thousand years old. The wood of this tree is of so very dry a nature that it will not endure to be fastened with nails, from which it shrinks; it is usually secured with pins made of itself. When growing, its branches spread out horizontally, drooping towards their ends with their own weigh . It is remarkable that, as far as has yet been discovered, the cedar is not to be found as a native in any part of the world but Mount Libanis, in Syria. Seeds and plants of it were obtained from Lebanon, and raised in England in the seventeenth century.

The most remarkable individuals of this species, in point of age, near

London, are those in the Chelsea Botanic Garden, now in a state of rapid decay. Till lately there was another fine old specimen at Hammersmith, in the garden of a house which was formerly occupied by Bishop Atterbury, the well-known diocesan of Rochester, in the reign of George I. At Enfield there is another very old cedar, by some supposed of a

Fig. 5.



greater age than those at Chelsea. This tree has been a favourite subject of frequent allusion with both ancient and modern poets. In speaking of the forests of Caucasus, Virgil says of it, in his second "Georgic:"—

"Heaven their various plants for use designs;
For houses *cedars*, and for shipping, pines."

Fig. 7.



Lucan speaks of it as the 'breeding-place of the eagle; and Horace hopes that his verses may be as lasting as its wood. A long list of allusions to it by our own poets might be given. Thomson's beautiful picture will be sufficient:—

"On some fair brow
Let us behold, by breezy summers cooled,
Broad o'er our heads the verdant cedar wave."

The common, or white *larch*, which old botanists ranked under *larix*, is a tall and very graceful tree, with short, blunt, deciduous leaves of a bright green colour. It flowers in March and April, before the leaves fully expand, and it then presents a very elegant appearance. Its cones, as shown by the engraving (fig. 2), are ovate oblong, with the margin of their scales reflexed and jagged. It is a native of the Alps, Italy, Germany, and Siberia; and has been long cultivated very extensively and with great profit in this country. Poetical allusions to the larch are very rare in the works of the Greek and Roman poets. Ovid is supposed to refer to it in the following lines:—

"The new-made trees in tears of amber run,
Which harden into value by the sun."

The artist has given a very accurate drawing of this handsome tree in our illustration (fig. 4).

Fig. 6 is a sectional representation of a common mountain fir, in which the knarled character of the branches and the drooping foliage is well represented; fig. 7 shows the sharp, needle-like form, of its leaves on the stem.

Besides these principal species of the fir tree, there are a few others which might safely be grouped under some one of those which we have described. Some botanists have classed them as separate species, but they possess few features of sufficiently peculiar interest to justify the distinction. Perhaps the most distinct of these minor varieties is that called the *dwarf-fir*, of which our engraving (fig. 5) sufficiently illustrates the peculiarities. It is a low, stunted tree, of no beauty, with ovate pointed cones, of which, when ripe, the margin of the scales is greatly reflexed. It is a native of the Carpathian mountains.

THE TRAGEDY OF STANTON HARCOURT.

On the south side of the church of Stanton Harcourt is a monument on which is inscribed:—

Near this place lie
The bodies of JOHN HEWET and SARAH DREW,
An industrious young man
And Virtuous maiden of this Parish,
CONTRACTED IN MARRIAGE;
Who being with many others at Harvest work,
Were both in one instant killed by lightning
On the last day of July,
1718.
Think not by rigorous judgment seized
A pair so faithful could expire,
Victims so pure heav'n saw well pleased,
And snatched them in celestial fire.
Live well and fear no sudden fate
When God calls virtue to the grave,
Alike 'tis justice soon or late,
Mercy alike to kill or save.
Virtue unmoved can hear the call,
And face the flash that melts the ball.

The story of this unfortunate pair created much interest at the time of their decease, and the following account of it was written by Gay (the poet) a few days after the melancholy event. "John Hewet was a well-set man of about five-and-twenty. Sarah Drew might be called rather comely than beautiful, and was about the same age. They had passed through the various labour of the year together with the greatest satisfaction; if she milked, it was his morning and evening care to bring the cows to her hand; it was but last fair that he bought her a present of green silk for her straw hat, and the posy on her silver ring was of his choosing. It was that very morning that he had obtained the consent of her parents, and it was but till the next week that they were to wait to be happy. Perhaps in the interval of their work they

were now talking of the wedding clothes, and John was suiting several sorts of poppies and field flowers to her complexion, to chuse her a knot for the wedding-day. While they were thus busied (it was on the last of July, between two and three in the afternoon) the clouds grew black, and such a storm of lightning and thunder ensued, that all the labourers made the best of their way to what shelter the trees and hedges afforded. Sarah was frighted and fell down in a swoon on a heap of barley. John, who never separated from her, sat down by her side, having raked together two or three heaps of the barley to secure her from the storm. Immediately there was heard so loud a crack as if heaven had split asunder; every one was now solicitous for the safety of his neighbour, and called to one another throughout the field; no answer being returned to those who called to our lovers, they stept to the place where they lay; they perceived the barley all in a smoke, and then spied this faithful pair. John with one arm about Sarah's neck, and the other held over her as to screen her from the lightning. They were struck dead, and stiffened in this tender posture. Sarah's left eyebrow was singed, and there appeared a black spot on her breast; her lover was all over black, but not the least signs of life were found in either. Attended by their melancholy companions, they were conveyed to the town, and the next day were interred in Stanton Harcourt church-yard. My Lord Harcourt, at Mr. Pope's and my request, has caused a stone to be placed over them, upon condition that we furnished the epitaph, which is as follows.—

'When Eastern lovers feed the fun'ral fire,
On the same pile the faithful pair expire.
Here pitying Heav'n that virtue mutual found,
And blasted both that it might neither wound;
Hearts so sincere th' Almighty saw well pleased,
Sent his own lightning and the victims seized.'

But my Lord is apprehensive that the country people will not understand this, and Mr. Pope says he will make one with something of scripture in it, and with as little of poetry as Hopkins and Sternhold."

The epitaph engraven on their monument is that written by Pope, and to which Gay alludes above.

The "Celadon and Amelia" of Thomson was probably suggested by this catastrophe; but the poet has made the tragedy more touching by the escape of one of the lovers:—

"————Young Celadon
And his Amelia were a matchless pair;
With equal virtue form'd, and equal grace,
The same, distinguish'd by their sex alone:
Hers the mild lustre of the blooming morn,
And his the radiance of the risen day.

They loved: but such their guileless passion was,
As in the dawn of time informed the heart
Of innocence, and undissembling truth—
'Twas friendship heightened by the mutual wish,
Th' enchanting hope, and sympathetic glow
Beam'd from the mutual eye. Devoting all
To love, each was to each a dearer self;
Supremely happy in the awaken'd power
Of giving joy. Alone, amid the shades,
Still in harmonious intercourse they lived
The rural day, and talk'd the flowing heart,
Or sigh'd, and look'd unutterable things.

So pass'd their life, a clear united stream,
By care unruffled; till, in evil hour,
The tempest caught them on the tender walk,
Heedless how far, and where its mazes stray'd,
While, with each other blest, creative love
Still bade eternal Eden smile around.
Presaging instant fate, her bosom heaved
Unwonted sighs, and stealing oft a look
Of the big gloom on Celadon, her eye
Fell fearful, wetting her disordered cheek,
In vain assuring love, and confidence
In Heaven, repress'd her fear; it grew, and shook
Her frame near dissolution. He perceived
Th' unequal conflict, and as angels look
On dying saints, his eyes compassion shed,
With love illumin'd high. 'Fear not,' he said,
'Sweet innocence! thou stranger to offence
And inward storm! He, who yon skies involves
In frowns of darkness, ever smiles on thee
With kind regard. O'er thee the secret shaft
That wastes at midnight, or th' undreaded hour
Of noon, flies harmless; and that very voice,
Which thunders terror thro' the guilty heart
With tongues of seraphs, whispers peace to thine.
'Tis safety to be near thee sure, and thus
To clasp perfection!' From his void embrace,
Mysterious Heaven! that moment, to the ground,
A blackened corse, was struck the beauteous maid:
But who can paint the lover, as he stood
Pierced by severe amazement, hating life,
Speechless, and fix'd in all the death of woe!
So, faint resemblance! on the marble tomb,
The well-dissembled mourner stooping stands,
For ever silent, and for ever sad."

THE BLOSSOMING SEASON.

Our gardens and fields are now decorated with the beauties of Spring, and the country presents the most delightful aspect. The eternal word of the Creator, pronounced when he formed the world, has produced all these effects; his all-creating hand has again renovated the earth, and, in a measure, created it anew for the pleasure and happiness of his creatures. It is God alone who calls for the Spring, and orders it to appear. Approach, O man, and try what thy wisdom and power can execute! Canst thou make one tree to blossom, or one leaf to germinate? Canst thou call from the earth the smallest blade of grass, or order the tulip to rise in all its splendour? Contemplate these flowers; examine them with attention. Can they be more perfect, can their colours be more beautifully blended, or their forms more elegantly proportioned? Can the pencil of the painter equal the warmth of the blossoming peach, or imitate the richness of a cherry-tree in bloom? So far from imitating, no one can conceive all the beauties of renovated nature; and if there were no other proofs of the power and wisdom of God on the earth, the flowers of spring would sufficiently display them. Every tree that blossoms, every plant, every flower, manifests a portion of that wisdom and beneficence so abundantly diffused through the earth. There is an infinite diversity among the blossoms of trees; though all beautiful, they differ in degree, one surpassing another; but there are none which do not possess some beauty peculiar to themselves. Some have flowers of a pure white, others have streaks of red, and shades, and add to beauty and elegance the most exquisite fragrance. But all these multiplied varieties do not affect their fecundity.

From the consideration of these circumstances we may receive profit and instruction. We may reflect that, though we are not favoured with the same advantages that some possess, we should be neither discouraged nor afflicted. The privation of some accidental benefits can in no degree injure our well-being. Though we may not be quite so rich, so powerful, or so handsome as some are, these are trifling things in the estimation of the virtuous and the wise; for without them we can be equally happy, equally useful to our fellow-creatures, and equally pleasing to God. True beauty consists in the works of piety and the fruits of virtue. The blossoms of a fruit-bearing tree please more than the splendour of the tulip, or the richness of the auricula; because from the one we expect, when the blossoms are over, to receive fruit; while the others please for a moment, and are seen no more. Let us not then prefer the mere lustre and charms of external beauty; the rosy tints of health, the elegance of form, and the freshness of youth are fleeting, and soon fade; they alone cannot secure present peace, nor durable happiness. Those blossoms only which promise fruit worthy of God, and useful to mankind, deserve our regard, and merit our approbation. As the beauties of the blossoming trees hastily perish, so will the youth, now in the spring of life, fluttering in the gaiety of their charms. Let those, then, who are in the morn of life, and in the vigour of health, prepare, by study and application, to produce in the evening of their days, when divested of all external charms, the abundant fruits of piety, of virtue, and of knowledge.

THE LITTLE FARMER.

Country scenes and employments have an irresistible charm for everybody. Not that we can point out exactly what it is in the old ivy-grown wall, or the thatched roof, or the busy farmyard, or noisy barn-door fowl, that interests us; nor can we say that there is what may be called positive beauty in the round face of the girl in our engraving, or the disordered attire of the chubby urchin at her side. But there is truth and life and reality in every one of them, enough almost to prove, after all, that an eclogue is the poem which adheres closest to nature, and is, at the same time, the most complete, because with force it unites simplicity, and with simplicity, grace. Its descriptions and sentiments are always true, because rustic life is nearly always the same, now as when Tityrus and Melibœus gossiped two thousand years ago under the shade of the wide-spreading beech.



DRAWN BY FREEMAN, FROM A SKETCH BY LOUTHERBOURG. ENGRAVED BY PATAS.

In towns men hardly understand their real position, or the end for which they are working. They are like soldiers, moved in masses from one point to another, and know not the end for which they are brought together; nor is it necessary that they should. Their occupations are purely conventional; they do their share of the work, but they do not see the results. Their labour is lost sight of in the complications of the great social machine. Not so in the country. There, nothing is obscure. The means are employed, and the results appear in due season. Rustic life affords plainer evidences than any other that man is fulfilling the mission assigned him by Providence. It is in it that he truly exercises dominion over the earth and its creatures, and makes both work together for his good. Agriculture has been the cradle of modern society, and to this day it is its mainstay and hope. Men who are condemned to live in the haunts of manufacturing and commercial industry, rush to the fields whenever leisure allows them, and gaze with rapture upon landscapes, even when transferred to canvas.

The scene before us is a simple one, but most characteristic, and well supports the artist's fame for truth and ingenuity. Philip James de Loutherbourg was born at Strasburg in 1740. His father was principal painter to the Prince of Hanaudarmstadt, but intended to enter his son in the engineer department of the army, while his wife was anxious to bring him up for the Lutheran ministry. He however received a liberal education at the college of Strasburg; and as he manifested a great inclination for painting, his parents sent him to Paris to study under the celebrated Carlo Vanloo. He made such progress that he was elected a member of the French Academy of Painting, though it was one of their rules that no one should be admitted who had not reached his thirtieth year. He then travelled in Italy, Germany, and Switzerland, and painted a great number of pieces, not only landscapes but battles, sea pieces, and portraits. In 1771 he came to England, and was employed by Garrick in the decoration of Drury Lane Theatre. In 1782 he invented a new sort of exhibition, which he called Eidophusikon, a series of moving pictures, something like a panorama; but the undertaking was by no means successful. In the same year he was elected a member of the Royal Academy. He painted the "Review of Waverly Camp," now in the possession of her Majesty, the history of Lord Howe, and some other pieces of a similar nature. He died at Chiswick in 1812.

SIR DAVID WILKIE.

Our readers may remember that in the sketch of the life of Benjamin West, with which we some weeks ago presented them, we mentioned as one of the most interesting circumstances in his singularly successful career, the love of art which he displayed when he had scarcely emerged from infancy. Most biographers tell, it is true, of the early fondness of their heroes for the pursuits in which they afterwards distinguished themselves. Napoleon was a military leader at Brienne, and Ferguson was fired with enthusiasm for science when tending a farmer's sheep upon a mountain pasture. How much of great men's success is to be ascribed to circumstances which began their operation only when youthful fire had begun to pale, and how much to impulses or tastes which grew up and flourished in their boyhood, it is not our present purpose to inquire. It must be acknowledged, at all events, that experience justifies us in asserting, that most of those who have excelled in the imitative arts at least, have in early life given strong and unmistakeable indications of their destiny. Amongst the hundreds of great names whom we might cite in support of our position, David Wilkie stands pre-eminent. Before he could read he could draw, before he could spell he could paint.



DRAWN BY OSWALD MURRAY FROM A PAINTING IN THE NATIONAL GALLERY. ENGRAVED BY H. LINTON.

He was born in a quiet Scottish manse, in the parish of Cutts, in Fifeshire, on the banks of the Edenwater, on the 18th of November, 1785. He was the third son of David Wilkie, minister of the parish, and Isabella Lister, his third wife. He was sent when seven years of age to a school in the neighbourhood, but so great was his indolence, or so deficient the teacher, that he learned nothing. When in his twelfth year he was

removed to the grammar school of Kettle, of which Dr. Stonehau, now Bishop of Torouto, was master; but here, also, to his father's great chagriu, his progress was no better. Neither threats nor entreaties could win his attention to anything but drawing. So after a fruitless trial of eighteen months he was again removed. The elder Wilkie was now in a state of great perplexity. It was evident that his son was bent on being a painter; but, independently of a strong dash of good old Scotch contempt for everything that savoured of vanity, or mere decoration of house or person, the good minister did not see how his son was ever to earn his bread by painting. The truth is, that the votaries either of literature or art iu the last century, were but too frequently obliged to worship at the shriue of their goddess with empty stomachs and threadbare coats. The mass of the people read but little; books, as well as pictures, depended for sale and success upon the whims aud caprice of people in "high life," aud many a broken heart and life of blasted hopes have attested how wretched and rotten that dependence is. If an author could not move the sympathies of some member of the *beau monde* by a whining sycophantish dedication, he died in silence in his garret, and left himself for the admiration of the world three generations afterwards. Picture buying was also necessarily restricted to the opulent and refined. Taste in matters of art was in a great measure confined to the *haute noblesse*, and they were not always very discriminating or very lavish iu their favours to her followers. There was not then, as now, a large and wealthy and highly educated middle class, as distinguished for its encouragement of the beautiful as for its devotion to the useful, making up for its want of long descent by the practice of the highest and most graceful virtues of private life, and the stern and faithful discharge of public duties. Those were the days when to write or to paint was to live in Grub street, and to live in Grub street was to have about one meal in two days, and wonder that the world was so good as to let the wretched author or artist have even that.

No wonder, then, that Wilkie's father trembled for his son's future career when he saw him devoting himself to painting. No wonder that he used all his influence to induce him to adopt some less precarious calling. No wonder that his old grandfather, a "cannie" old covenanter, bid him follow the church as the surest means of earning an easy and respectable livelihood. But it has often been said that it is from our mothers we inherit our chivalry, our devotion to truth, to faith, to honour; our recklessness to consequences in pursuit of duty, the high and lofty gallantry which overlooks the danger and the toil, and sees only the light in the distance. It has often, too, been said that women's courage rises when men begin to shrink and waver. We see proofs of its truth every day. Here is another. Wilkie's mother encouraged him to follow his inclination, and won a reluctant consent from his father. He was then sent in 1799 to the Trustee, Academy in Edinburgh for the Encouragement of Manufactures, with some specimen drawings, and a letter of introduction from the Earl of Leven to Mr. Thompson, the secretary. The drawings were not considered satisfactory, and it was only at the earnest request of the Earl of Leven that he was admitted. He now made wonderful progress. Everything he attempted he executed with the greatest precision and faithfulness to leading principles. He showed himself a keen observer of nature—and gave early indications of the after excellence of his *tableaux de genre*. He was a constant frequenter of scenes likely to furnish subjects for paintings of this sort—trysts, fairs, and market-places. In that species of drawing, we are told, in which taste and knowledge are combined, he was far behind many in the same class who had not a tithe of his talent; but though behind in skill, he surpassed all his companions in comprehending the character of whatever he was set to draw. He was always one of the first to enter the academy when opened in the morning, and invariably one of the last to depart; and his intense application during the hours of study drew upon him the ridicule of the other students, who frequently pelted him with small pills of bread. When the drawing hours were over he returned to his lodgings, and there laboured during the remainder of the day to carry out what he had begun in the forenoon, by sitting before a looking glass and copying his own face and hands, and thus endeavouring to blend his impressions drawn from the antique with those derived from a diligent study of nature. He had already begun to perceive the importance of the action of the hands in telling a story; and whenever he was unable to obtain a model which pleased him, he invariably introduced his own. In his picture of the "Blind Fiddler," which is now in the National Gallery, the hands of every one of the figures are drawn from his own, and also the expression of the heads. The girl leaning on the back of the chair is said to be very like what he was at the time.

In 1803 he won the ten guinea prize which had been offered for the best painting of "Callisto in the Bath of Diana." At the sale of his effects after his death this was sold for £48 6s. In the same year he made his first sketch of the "Village Politicians." He also about this time painted a "Scene from Macbeth," where the murderers sent by Macbeth to the house of Macduff meet with his wife and child. The expression of the boy who boldly answers their questions was so excellent, that Mr. Graham, the teacher of the academy, immediately on seeing it, predicted that he would one day arrive at eminence from his strong delineation of nature. In 1804, in his nineteenth year, he left the academy and returned home. While there he painted "Pitlessie Fair," in which he inserted one hundred and forty portraits of rustics of the neighbourhood, most of whom he sketched in church for want of a better opportunity. For this he only received £25 from Kinnear, a Scotch laird.

He also commenced portrait painting at five guineas a head. It appears that he got a good deal of practice in this way, but none of his works are remarkable for any great excellence. He finished a picture called the "Village Recruit," and took it with him to London when he went. It was exposed in a window in Charing-cross, and was soon sold for six pounds, the price marked upon it. Upon arriving in London he took lodgings at 8, Norton street, and immediately obtained admission as a student in the Royal Academy. He does not appear to have been very much struck upon entering with the proficiency or good sense of his fellows. He remarked in a letter to a friend in Scotland, that he found them to know a good deal of the cant of criticism, and very seldom disposed to regard anything as meritorious which is not, at least, two hundred years old. Soon after his coming to town he was fortunate enough to secure the patronage of Stoddart, the celebrated pianoforte maker, who was married to Wilkie, and ever afterwards proved his fast friend. He sat for his portrait, and ordered two pictures from him, and introduced him to the Earl of Mansfield, who commissioned him to paint a picture from his sketch of the "Village Politicians," taken from the "Ale caup commentators" iu the ballad of "Will and Jeanie," by Macneill. Wilkie demanded fifteen guineas as the price of his work, but the earl told him to consult his friends about it. The picture was when finished exhibited at the Royal Academy and excited such general admiration that he determined upon raising the price to thirty guineas. Lord Mansfield remonstrated, but the artist reminded him of his advice, and said that he was now acting upon it. Two other persons had offered him £100 for it.

The sketch which he had drawn while in the Academy at Edinburgh excited a sensation amongst the students, and called forth the warm commendations of Graham, his teacher; but it differed materially from the painting in many respects. It was a curious circumstance, as mentioned by Mr. Buruet, that although the pupils were at that time engaged in the study of the works of Westall, Morland, Julius Ibbetson, &c., many of the characters in Wilkie's sketch are taken from individuals frequently to be met with around Edinburgh. He was constantly dodging the peasantry, watching their attitudes and incidents in their daily life. He sometimes went out with some of his companions about dusk, and looked in through the windows of the cottages to see how the inmates grouped themselves around the fire, and in what way they were engaged.

He now gave up all idea of returning to Scotland, and determined upon remaining in London, as commissions came pouring in upon him in pleasing profusion. He soon after painted the "Blind Fiddler" for Sir George Beaumont. Of this picture we present our readers with an engraving; and we have already remarked upon the peculiarity that the hands of all the figur

in it are taken from his own. Sir George lent him a very fine specimen of Teniers, which he kept before him the whole time he was engaged on the work, that he might acquire the sharpness of touch which distinguishes the French master. A great number of other pictures followed in rapid succession. "Alfred in the Neatherd's Cottage," for Mr. Davidson; "The Card Players," for the Duke of Gloucester; and "The Rent-day," for the Earl of Musgrave; "The Sick Lady," "The Jew's Harp," &c. The "Village Festival" was painted for Mr. Angerstein, for eight hundred guineas. In 1809 he was elected an associate of the Royal Academy, and a member in 1811. His own health was now beginning to decline rapidly from the closeness of his application. He therefore determined upon paying a visit to Scotland, where he remained from August until October. Upon his return to town he took apartments in Kensington. In May, 1812, he opened an exhibition of his pictures, twenty-nine in number, in Pall-mall. The undertaking extended his reputation, but caused him a loss of £414. His father died in December, and he then invited his mother and sister to come and live with him in London, in a house which he took in Kensington. In 1813 he painted "Blindman's Buff" for the Prince Regent. For the "Letter of Introduction" and the "Refusal," both small pictures, painted during this year, he received two hundred and fifty and three hundred guineas respectively.

He returned his income for the income tax in 1813 at £500 per annum, making the necessary reduction for his house.

In 1814, during the short interval of peace, he went with his friend Mr. Haydon to Paris, for the purpose of studying the works of the great masters contained in the gallery of the Louvre. He paid particular attention to the Dutch and Flemish School, and stated that he was particularly struck with the works of Ostade and Terburg. Upon his return his style became somewhat altered, and was evidently founded upon that of the models which he had been examining. In the "Blind Fiddler," the "Rent Day," "The Letter of Introduction," and "The Chelsea Pensioners," there are evident traces of the precision and sharpness of Teniers and Metzu. In 1814 and 1815 he painted "Distraining for Rent," "The Pedlar," and the "Rabbit on the Wall." The first of these was purchased by the British Institution for 600 guineas. In 1816 he paid a visit to Holland, with Rembosh the engraver. In 1817 he went to Scotland, where he painted Sir W. Scott and his family. After his return to London the authorities at Cupar presented him with the freedom of the burgh. In this year he commenced his great work, the "Chelsea Pensioners," for the Duke of Wellington, for which he received 1,200 guineas. It is considered Wilkie's masterpiece, and the last of his really great pictures. It represents a group of Chelsea pensioners reading the *Gazette* of the battle of Waterloo, which had just been brought them by one of the Marquis of Anglesea's lancers. A short time previously he had painted "The Reading of the Will" for the late King of Bavaria, for which he received £447 10s. At His Majesty's death it was purchased by his successor for 12,000 florins, or £1,000 sterling.

In 1824 he lost his mother and one of his brothers; and his own health was beginning to decline so rapidly that he determined upon making a lengthened tour on the continent. Passing through France and Switzerland, he reached Italy, where he remained eight months engaged in the study of the great masters. In writing from Rome he gives the result of his observations, in a sentence which ought long ago to have put an end to the cant of criticism. "From Giotto," says he, "to Michael Angelo, expression and sentiment seem the first thing thought of, while those who followed seem to have allowed technicalities to get the better of them, simplicity giving way to intricacy; they seem to have painted more for the artist and connoisseur than for the untutored apprehensions of ordinary men."

Upon his leaving Italy he travelled into Germany, and visited Dresden, Toplitz, Carlsbad, Prague, and Vienna. At the last-mentioned place he had the very questionable honour of dining with Prince Metternich. Upon his return to Rome, the Scotch artists residing there entertained him at dinner, the Marquis of Hamilton presiding. His health now began to recover, and he forthwith recommenced his labours. He finished three pictures, and then set out on his way home. He crossed the South of France and entered Spain, arriving at Madrid in 1827. While here he painted the "Spanish Council of War," and the "Defence of Saragossa." In the summer he left Spain and arrived in Paris in June, 1828, and the same month returned to England. To the Exhibition of 1829 he sent eight pictures, four Italian and three Spanish, and a portrait of General Rellie. The three Spanish and two of the Italian were purchased by George IV. These pictures indicated a total alteration in his style, and those painted in Italy differed very materially from those painted in Spain. The former possess much greater serenity of composition than the others, but all have great breadth of colour and largeness of composition. In the earlier part of his career, while he made the Flemish and Dutch painters his models, most of the figures are too small for the interiors, as in the case of the "Blind Fiddler" and "Blindman's Buff;" but in his later works, after his visit to Italy they fill up the canvas, as in the cartoons of Raphael. He appears to have endeavoured to combine in his own pictures the softness of Corregio with the strength and serenity of Raphael. While at Madrid he paid most attention to the works of Velasquez and Murillo. The difference between his style before leaving England for the continent is clearly shown in his "Entry of George the Fourth into the Palace of Holyrood." This picture had been begun before he left home, and was finished after his return, and no one would imagine from looking at it that one artist had done the whole. The first part has all the minuteness of finish and detail of the Dutch school, while the latter is painted in the full flowing style of the Spanish artists. Titian and Corregio were his great authorities for colouring. In a letter to one of his friends in England he speaks of himself as having acquired "a bolder and more effective style," and that the result was "rapidity."

In 1830, after the death of Sir Thomas Lawrence, he was appointed Painter in Ordinary to His Majesty, and was also a candidate for the presidentship of the Royal Academy. He had, however, only one vote in his favour, the successful candidate being Sir M. A. Shee. In 1831 he sent to the exhibition portraits of Lady Lyndhurst and Lord Melville, and in 1832 he exhibited one of the most celebrated of his pictures, "John Knox preaching the Reformation in St. Andrews," painted for Sir Robert Peel for 1,200 guineas. This is thoroughly in the Spanish style, and has been ably engraved by Mr. Doo. After this he painted a number of portraits; amongst others those of the Duke of Wellington and Queen Adelaide. But his next great work was his "Columbus," which represented the great voyager submitting his chart to the Spanish authorities. It is the most highly coloured of all his works. Next came the "Peep-o'-day Boy," painted after a visit to Ireland; "Napoleon and the Pope in conference at Fontainebleau." In 1836 he was knighted by William IV.; and in 1837 appeared his "Mary Queen of Scots escaping from Loch Leven Castle," "The Empress Josephine and the Fortune teller," and "The Cotter's Saturday Night." In 1838 he painted "The Queen's First Council," and a portrait of O'Connell; and in 1839 "Sir David Baird discovering the body of Tippoo Saib after the storming of Seringapatam." This was purchased by Lady Baird for 1,500 guineas, and is considered the greatest of Wilkie's historical works. In 1840 he exhibited eight pictures, the most remarkable of which was "Benvenuto Cellini presenting a silver vase of his own workmanship to Pope Paul III."

In the autumn of the same year he set out on a tour to the east with Mr. Woodburn. He went by Holland and the Rhine to the south of Germany, and thence to Constantinople by the Danube. At Constantinople he was engaged to paint a portrait of the young sultan. His own description of the sitting may not prove uninteresting to our readers. "12th December.—Drove with Mr. Pisani to the winter palace of the sultan; were received inside the gate in a room where we had pipes; after waiting for some time, were conducted through a beautiful garden to the palace, changed shoes, and were ushered up a staircase to a most splendid and comfortable room. Here I put out the colours, easel, and placed chairs; and having the windows all but one darkened, stated that all was right. After a time his Imperial Majesty the sultan arrived; his style was simple and gentlemanly, and his reception of me very gracious. On taking his seat he

addressed to me a few words, which Mr. Pisani interpreted to be that he was most happy at the request of a distinguished artist from England to sit for his portrait, considering doing so might show his consideration for the queen of Great Britain, who was so powerful an ally of Turkey. I bowed. Then being told by his majesty to be seated, I began the head. He came and looked at it several times. I understood he remarked I was making it too little; then asked if it was to be standing. I assured him no, but sitting on the throne as sultan receiving people presented.



THE RABBIT ON THE WALL. FROM A PAINTING BY SIR D. WILKIE.

At another time he said, might not the uniform with the epaulettes be seen. But I urged that for this picture the cloak of the sultan would be better, and that the hands and sword would be seen. This seemed to please him, and I went on; and I think he thought it like and pleasing."

In January Wilkie and his friend left Constantinople, going by way of Smyrna and Beyrout to Jerusalem. On ascending an eminence on the road from Jaffa, the first sight of the Holy City burst upon them. Wilkie was in raptures.—"We saw, and oh, what a sight!" says he, "the splendid walled city of Jerusalem. This struck me as unlike all other cities; it recalled the imaginations of Nicolas Poussin—a city not for every day, not for the present, but for all time." On the 17th of April they left Jerusalem for Jaffa, and arrived at Alexandria on the 22nd. Here Sir David complained of illness, and stated that he had not been enjoying good health for three months previously. He however commenced a portrait of Mehemet Ali, which the latter wished to keep himself, and sat for two hours and a half the first sitting.

On the 21st of May he embarked on board the *Oriental* fo England. On the 26th he arrived off Malta, where he imprud dently eat a large quantity of fruit and iced lemonade, and on th first of June whilst off Gibraltar, he died, and on the sam evening his body was committed to the deep, the burial servic being read over him by the Rev. James Vaughan, Rector o Wroxall. And there he sleeps

——— ———"A calm and peaceful sleep
With the wild waves dashing o'er him."

It must for ever be a subject of regret that the mortal remains of one of the purest and most potent spirits that England ever nursed could not have been restored to the bosom of their mother earth. But the country which his genius glorified can never forget him. At a meeting of his friends, at which Sir Robert Peel presided in August, 1841, a subscription was commenced to raise a monument to his memory, and Mr. Joseph was commissioned to execute a statue to be erected in the inner hall of the National Gallery, the scene of so many of his triumphs. The sale of his effects, among which were many unfinished works, realised many thousand pounds. An unfinished sketch of "The School" was sold for £750.

Sir David Wilkie was tall, of sandy complexion, and had sharp eyes. His manners were mild and gentlemanly. He retained through life an ardent attachment to his native land, and though professedly belonging to no party in politics, he displayed the exaggerated respect for mere wealth and station which characterises many parvenus, when not possessed of great strength of mind. There might have been considerable change in his style had he lived to return from the East; but what he has achieved is more than sufficient to place him in the first place amongst the artists of the present age; and there is every probability that lapse of time will only increase men's respect for his genius, and their admiration of his works.



THE BLIND FIDDLER. FROM A PAINTING BY SIR D. WILKIE.

DOMESTIC ECONOMY IN BOMBAY.

The way in which our Anglo-Indian friends contrive to pass their lives in spite of a burning sun and other disagreeables incidental to a tropical climate, has been pleasantly told in a volume lately published, entitled "Life in Bombay." As soon as the writer arrived at the island which, with the country round, forms one of the three presidencies of British India, he was doomed to be disappointed. With his mind filled with English notions of oriental pomp, and his imagination excited by the tales he had heard on shipboard, of the magnificence of Indian houses in an Indian climate, it is easy to conceive his amazement when he stepped from his carriage into the doorway of a "long one-storied building with an over-hanging thatched roof, and looking for all the world like a comfortable cow-house!" In speechless dismay he listened to his companions' assurance that this was actually his destination and future home. But, however much he might have felt disappointed at the sight of the exterior of the building, his spirits were revived when he came to make acquaintance with the inside. The similarity to the cow-house was only outside; and when he made his way into a "large and elegant drawing-room, supported upon pillars of faultless proportions, and furnished with every modern luxury," he was fain to acknowledge that he formed too hasty a decision. However, we had better let the author speak for himself.—

"A large screen of red silk divided this apartment from a spacious dining-room; and the completeness of the remainder of the house bore ample testimony that neither comfort nor appearance is neglected by the Anglo-Indians in the internal arrangements of their domiciles, however slightly they may consider the external.

"An entire suite of apartments is appropriated to the use of each individual, consisting of a bed-room, dressing-room, and bath-room; and one or all of these usually open upon the verandah which surrounds the house, and which is considered indispensable in the construction of even the poorest abode; not only as affording protection from the intolerable glare of the sun during the day, but as presenting an agreeable family resort, when the refreshing evening breeze tempts every one to exchange the heat and lights of the drawing-room for a delightful *réunion* in the open air.

"Here, too, conversation flows on more unrestrainedly than

beneath the blaze of the numerous lamps, rendered necessary by the extensive dimensions of a Bombay room; and we have often remarked the influence of this witching hour in imparting confidence to the timid and unsealing the lips of the taciturn. But its effect upon one individual of our acquaintance was particularly conspicuous, and upon more than one occasion it has been our privilege to listen in amazement to the outpourings of a superior, though usually considered, reserved mind; as with rapid eloquence he bore all before him, and made his almost entranced audience forget that this was the man they had hitherto shunned for his apparently unconquerable silence!

"It must however be premised, that the above description of a Bombay house refers distinctively to the bungalow, or one-storied building, and is not to be considered as a criterion of the general aspect of English residences, which are usually lofty and stately-looking mansions, with façades adorned with spacious porticos supported on pillars of sufficient width to admit two carriages abreast, thus insuring to the occupants a sheltered mode of ingress and egress, equally essential during the heat of the fair season and the damp of the monsoon.

"The internal arrangement of this description of house is much the same as in England; the ground-floor containing the dining and breakfast rooms, library, &c., and often one or two suites of apartments appropriated as guest's chambers, and which are seldom untenanted for a single day, in a place where hospitality is decidedly a leading characteristic.

"The staircases are generally wide and handsome, conducting to the reception and family rooms; and not unfrequently, a charming withdrawing-room is found on the flat top of the porch by surrounding it with a balustrade, which also serves as a support to a light veranda-like roof.

Though the houses in Bombay are built with all due regard to comfort, and are admirably adapted to the climate, great care being always taken to insure a free admission of air into every compartment; yet, some time must elapse before the stranger can divest himself of the idea that he is always in public; and vainly he sighs for the unassailable retirement which the announcement of "going to one's own room" always secures at home. The cause of this apparent publicity is evident. To promote a thorough ireulation of air, the number of doors and windows is necessarily great; and as even the partition walls are generally constructed of venetians, moveable to the slightest touch, it can be easily understood that the first impression produced upon the mind of a *nouvel arrivé*, as he enters an Indian bedroom, is, that he is to be the occupant of a magnified birdcage.

"The daily use of the bath can scarcely be classed as a luxury; it becomes an absolute necessary, not only of cleanliness, but of health, in a climate where heat and moisture alternately predominates; and perspiration is consequently so profuse as to require frequent ablutions to maintain an unimpeded action to the pores of the skin. But here are none of the mechanical contrivances for abridging labour, such as the poorest bath-room in England would possess; and even our sturdy housemaids at home would shudder to hear that the large tubs are actually filled by hand! the warm water being conveyed in chatties (or earthen vessels), which never contain more than from one to two gallons! It is, therefore, the entire business of one man to preside over this branch of household work, and indeed where the members of a family are numerous, a second becomes often necessary. This gentleman is termed the bheesty, or panee walla, and he is always to be seen accompanied by a bullock laden with skins, containing the supply of cold water which is obtained from some neighbouring tank.

"Although the number of servants considered indispensable to a moderately-constituted Bombay establishment is not nearly so great as in Calcutta or Madras, it is considerably larger than people of corresponding means would ever dream of maintaining in England, where, not only the terrors of taxation, but the alarming appetites of the inmates of a servants' hall, offer a formidable impediment to any superfluity of male domestics. Here, we neither provide bed nor board; for the former a piece of matting thrown upon the ground amply suffices, and upon this the most respectable servant contentedly stretches himself, swathed like an Egyptian mummy, from head to foot, in a white cloth during the warm weather, or in a comblee (coarse blanket) when the cold season makes its appearance. The variety of religions and castes amongst our domestics, is the surest guarantee to us of security from the annoyances of providing food. Neither Hindoos, Mussulmans, nor Parsees, would dare to partake of a morsel in the society, or even sight of each other; and so strictly is this separation enforced by their respective priests, that it is imperative even the cooking of their meals should be performed by people of their own community.

"Thus it is that our cooks are invariably Portuguese; who, being Christians, are not troubled with scruples regarding the preparation, or, indeed, appropriation of their master's repast's; and though ostensibly providing their own meat and drink, contrive to live luxuriously and gratuitously on the abundant remnants of an Indian table. These men often attain to great excellence in their profession; a skilful artiste is sure of commanding a good place and high wages; and thus both their cupidity and ambition are exercised to produce dishes, which the most refined epicures fresh from the *cuisines* of Paris and London need not despise. These people generally belong to the Portuguese settlement of Goa, whence they migrate in considerable numbers to Bombay, always unaccompanied by their wives and children, for whose provision they cheerfully doom themselves to voluntary exile, until the realisation of a sufficient sum will enable them to indulge in a six-months' visit to their family and friends at home. The dirzees, or household tailors, are also generally of this class; as, from their greater approximation in dress and habits to ourselves, it is naturally easier for them to enter into all the mysteries of fashion and fit, than it could possibly be to the Hindoos or Mussulmans.

"There is, however, a superior class of Portuguese in Bombay, who occupy with ability the posts of Purvoes, or clerks, in the public or mercantile offices, and are of course considered as aristocrats among their own people. But with few exceptions, these men, whose forefathers were once the lordly possessors of the soil, are in a position of absolute servitude in the present day; and their consequent deterioration, both in a moral and physical point of view, is melancholy to contemplate.

"Their habits are proverbially intemperate, whilst, strange to say, either from the effects of climate, exclusive intermarriage among themselves, or habitual intemperance, the complexion of the Indo-Portuguese is now conspicuously darker than that of the aboriginal natives of Asia.

"But all this time, we have proceeded no farther in the formation of our establishment than the Bheesty, cook, and Dirzee department; and lest we should be tempted to another digression, we will hasten at once to enumerate the several functionaries considered indispensable to the correct arrangement of a *maison bien montée* in Bombay.

"And first in rank, and in pay, comes the butler, or house steward, as he would be more properly denominated; whose business consists in a general superintendence of the other domestics, in purchasing all articles for household consumption, and cheating his master to the extent of his ability.

"In this latter qualification, indeed, few are deficient, their talents for appropriation being usually as capacious, as their insatiability is rapacious.

"Then follow the table servants, either two, three, or four in number, according to the size and circumstances of the family, and partially corresponding to our English footmen in their duties of attendance at table, cleaning plate, &c. To these are subordinate, the Musaul, or lamp-lighter, the Aamauls, whose duty it is to keep the house and furniture in cleanliness and order, and a Bobajee, or cook, with his mate, answering to our kitchen-maid at home. Then in the stable department there must be a coachman to every carriage, and a Gora-walla, or groom for every horse, and, according to the extent of the garden, from one to six Malleys, or gardeners.

"We have not yet touched upon the female department, though forming the most important and influential branch of the establishment. The Ayah is of course exclusively appropriated to the service of the "Madam Sahib," and, when treated with kindness and consideration, generally becomes faithfully attached to her mistress, and quite devoted in her love for the children, or *Baba*

lagne. These have also their separate attendants, either in the form of an Amah, or wet nurse, an Ayah or a child's boy, as the men-servants who wait upon the children are designated, let their age be ever so venerable.

"We must subjoin to this already long catalogue, the Dhobee, or washerman, with his assistants; and Peons *ad libitum*, whose laborious duties consist in sitting all day under the porch to receive, and hand in, the cards of visitors, notes, messages, &c. Altogether, the number of servants in a handsomely conducted English house, generally amounts to between twenty and thirty; and of these, the greater part, with their families, reside within the boundaries of their master's estate.

"The expense of such an establishment, though not so great as a similar one in England would be, is still considerable; certainly it can never be calculated under £200, and more frequently it amounts to £300, or even £400 per annum. But here, at least, the expense ends; as we are spared the enormous outlay and endless discomfort, entailed upon the English housekeeper, by the necessity of attending to the provision and accommodation of their never-satisfied dependants."

CARLSBAD. WATERING PLACE IN BOHEMIA.

IMAGINE a town built around a caldron of boiling water; and you will have some idea of Carlsbad. In the midst of the great masses of granite which are scattered over the surface of the surrounding country, the valley of Teplis seems to be a great fissure, as the protuberances and indentations on each side correspond exactly. This was doubtless caused by some great volcanic eruption in former times, as there are evident traces of its action upon every side. The lower part of the fissure appears to be filled with enormous rocks of granite, piled one upon the other in the wildest confusion, and leaving interstices between them so large as to resemble immense caverns. The meadows in the valley cover all this scene of disorder like great carpets; the waters rush down into the void, and as the abyss doubtless extends to the vicinity of the regions of eternal heat, they are there warmed, electrified, charged with carbonic acid, and various mineral substances, and are then sent up again to the surface to cure invalids. But on its arrival the gas disengages itself, and the calcareous matter which had been held in solution, settles in incrustations upon everything around. At first these incrustations were fixed upon the sides of the fissure only, but becoming thicker by degrees they have at last extended across the top, and vary in thickness from a yard and a half to two yards. Upon this a part of the town is actually built.



THE SPRUDEL SPRING.

This covering is of course kept heated by the high temperature of the waters underneath, and consequently let the winter be ever so severe they never have any snow at Carlsbad, because it melts immediately on falling, and flows into the river, which for the same reason never becomes frozen. As the incrustation is by no means a very strong substance, the water and gases confined beneath it sometimes burst it, and make their way through, and thus make a new spring, and a great column of vapour. In some places where the incrustation is exposed to violence of any sort, as to the action of the current of the river, they have been obliged to strengthen it, like an old broken basin, with pieces and fastenings. The pieces are slabs of granite and building joists, held together by bars of iron. "Large square blocks of stone," says a Carlsbad doctor, in a work upon the waters, "are placed above the spring, to serve as a defence against the great blocks of ide and trunks of trees which sometimes come floating down the stream, and in case of an inundation or a thaw, would beat down the crust and destroy the equilibrium necessary to the regularity of the jet of water." And to prevent all ruptures in the neighbourhood of any of the springs, by the passage becoming choked up by new incrustations, they sound them with a fathom line four times a year. By careful attention of this kind the mineral wells have come to possess a regularity and system, so to speak, which, if left to themselves, they could never have. In 1711 and 1727, very large openings appeared on various parts of the surface sufficient to cause considerable alarm, and it was then determined to dig more deeply than had ever been done before, and it is to this that the little knowledge which people possess of the internal formation of the crater or caldron is due. There is not merely a single crust, or a single cavity, but a great number of cavities separated from each other by irregular incrustations, like the vaulted roofs of a number of cellars placed one above the other. After the sounding line had passed through a great number of these caves, the explorers found themselves over an abyss of boiling water, the bottom of which they could not fathom, and which appeared to extend in the direction of the valley. The water made such a terrible noise, and foamed up with such fury, that they were at length obliged to make a hasty retreat.

There are eight springs to which invalids principally resort, but there are many others equally good in a medical point of view. These are all but jets from the same reservoir, differing solely in temperature, and the quantity of mineral substances which they contain, according as they have had to pass a greater or less distance through the soil, or have mixed more or less with rain-water. The principal well is called *Sprudel;* it is situated on the right bank of the Teplis, near the middle of the town. Its temperature is about 109 deg. Fahrenheit. Eggs are boiled in it, and it is made subservient to all sorts of culinary purposes; so that below the spring, and along the whole of the stream which flows from it into the river, an army of cooks may be seen every day in the season, plucking fowl, pulling the hair off sucking pigs, and getting eggs and vegetables ready. This scene, though not very poetical, is nevertheless interesting, as furnishing a remarkable instance of the variety of uses to which the waters may be applied, healing the sick, and cooking food for the healthy.

This spring appears to rise from the earth very calmly and soberly, but suddenly leaps up in a furious manner, giving out clouds of vapour that fill the apartment which has been built around it. The jet is not regular; sometimes it rises only about a yard, or a yard and a half in height; then suddenly springs up three or four yards, almost to the roof of the building, and then falls back with a great noise. From eighteen to twenty ebullitions of this sort have been counted in the course of a minute. Many might imagine that they are caused by the boiling of the water, but such is not the case. It is all owing to the escape of the carbonic acid. This gas accumulates in the upper part of the

cavity, and presses with great violence upon the surface of the water and upon the crust. The more the pressure increases, the more violently is the water forced towards the aperture, and when once it has reached it, it of course bursts out with terrific violence. The noise and ebullition is increased by the carbonic acid endeavouring to escape at the same time.

M. Berzelius, the Swedish chemist, of whom we lately gave a portrait and biography, has analysed the Carlsbad waters, and has found them to contain five-and-a-half parts of salt in every hundred. This is a very considerable proportion, and gives it a very strong savour, somewhat like that of chicken broth. Sulphate and carbonate of soda enter into its composition very largely—the former in the proportion of $2\frac{1}{2}$ to 100. But no use whatever is made of all this riches. It has been calculated that more than six pounds of sulphate of soda, and more than three pounds of carbonate of soda, fall into the river every minute; and as these salts are not only useful in a medical point of view, but have a high commercial value in consequence of their being extensively employed in various branches of manufacturing industry, it may be easily seen that nothing but great blindness and neglect on the part of the inhabitants of the town could induce them to neglect so important a source of revenue. More than nine tons of sulphate of soda, and about half this quantity of carbonate of soda, go to waste every year, which, at the selling price of these articles, would realise not less than £20,000.

It is said that the Sprudel Well was discovered in the middle of the fourteenth century, by Charles IV., emperor of Germany and king of Bohemia. He was out hunting in the forests in the neighbourhood, and the stag having crossed the river exactly opposite the boiling spring, the dogs followed close behind, and, in the ardour of the chase, fell into it. The emperor, hearing their plaintive howls, pierced his way through the thicket, and thus discovered the well. His physician examined the water, pronounced it medicinal, and recommended it to him for the cure of some wounds from which he was then suffering. He was so pleased with the result, that he built a castle near the spot, and hence the name of Carls-bad (Charles's bath). But the truth of every part of this story, except the last, is open to grave doubts. It is certain that the emperor interested himself in the success of the baths, and conferred upon the place some important privileges. He resided there during part of the years 1370 and 1376, and then bestowed his name upon it. It is very probable that the University of Prague, meeting at such a short distance from the springs, did not fail to examine them, and its recommen-



CARLSBAD.

dation would, of course, go far to enhance the reputation which they had already acquired. But their discovery must certainly have taken place at a period far beyond that assigned to it by the popular tradition. A document of doubtful authenticity asserts that the emperor used the waters for the healing of wounds which he had received at the famous battle of Cressy, where he lost his father, John the Blind; but it is now very clearly established that he was not present in the battle at all, and neither in his autobiography, nor in any contemporary manuscript, is any mention made of his having resorted to the springs. In very remote times there was a castle on a hill in the neighbourhood, the ruins of which have long ago disappeared, which was called *Hrad Wary*, or the "Castle of the Hot Spring." Neither the inhabitants of this castle, nor those of the town of Elben, only two leagues distant, and where the Three Kings often fixed their residence, nor the wood-cutters and hunters who frequented the forests could have been ignorant of the existence of so extraordinary a phenomenon. Besides the heat of the waters which prevents the river from freezing, and that of the ground which prevents the snow from lying, must have excited their curiosity to learn the cause, even if the thickets had hidden the jet from the view. The name Teplis is drawn from the heat of the waters, and this is found in historical documents bearing date some centuries previous to Charles IV.

The town is pretty, neat, and salubrious, and is almost entirely composed of lodging-houses for visitors. The population is of course every year increasing. In 1834, it numbered 3,287, exclusive of visitors, who made a total of 10,000.

MORNING.



COMMENCING THE LABOURS OF THE DAY. FROM A PAINTING BY STRADA.

John Strada, or Stradan, was born at Bruges in 1536, of an illustrious but reduced family, and in that city studied the first principles of painting under his father, who was an artist of eminence. To complete his knowledge, he paid a visit to Italy when very young, and for some time found employment at Florence in the palace of the duke. He proceeded thence to Rome, where he studied the antique, with the works of Raphael and Buonarotti. Before he quitted Rome, he painted in conjunction with Daniel da Volterra, and Francesco Salviati some of the ornaments of the palace of the Belvidere. By this he acquired some of the manner of Salviati, which he ever afterwards retained. From Rome he was invited to Naples by Don John of Austria, to paint some of his military achievements, and this he performed in a manner that gave great satisfaction to

his patron. He then again returned to Florence, and was for some time employed in decorating the palace and the churches. Some of his greatest works, and those upon which his reputation rests, may still be seen in that city. In the church of Annunziata is a painting of the "Crucifixion," which is a grand composition, consisting of a number of figures rather larger than life. In Santa Croce is a fine piece of the "Ascension;" in Santa Maria Nuova, is the "Baptism of Christ;" and in the chapel of the Palazzo Pitti are two altar-pictures, one of the "Nativity," and the other of the "Wise Men." Besides the subjects taken from sacred history he delighted to paint animals, huntings of the wild boar, and battles, all of which he executed in a noble style, with a steady hand and firm pencil. Notwithstanding his long residence in Italy, he always retained much of the Flemish manner. He had, however, a good taste of design and an agreeable tone of colouring. Strada was a member of the academy at Florence, where he died in 1604.

Our engraving is taken from one of the sixteenth century, reproducing one of the works of this master, called *Morning*. Although it has not the delicacy of finish which may be seen in engravings of the present day, it has a great deal of truth and character. The family are all up, and though, as the burning candles seem to indicate, it is not yet day, they have resumed their various occupations, with the exception of an obstinate sleeper in the adjoining apartment, whom a servant is vainly endeavouring to arouse. The grandmother is occupied in directing the movements of an oldfashioned spinning-wheel, the mechanism of which seems to interest the child at her side. The young mother and her sisters, clothed with modest elegance, seated on cushions, are engaged in some piece of embroidery, and a servant at the fireplace is amusing an infant with a rattle. The master of the house appears to be taking a snake out of some sort of a vase, whilst the servant gives him light with a lamp. The family appears to be that of a wealthy burgher of the olden time. The abundance, good taste, and even luxury which appear in their dress and in the furniture give the whole scene a very pleasing cast. Labour and early rising seem to them rather a virtuous habit, than, as now, a rigorous necessity.

A SUMMER EVENING WALK IN THE VILLA RICARDI, AT NAPLES.

How can I describe the beauties and enchantments that surround me? Read all the books of travels, read the glowing descriptions of poets, get by heart the hackneyed and enthusiastic terms that are distributed through every guide-book, raise your imagination to fairy dreams! still you can have but a poor idea of all that is lovely in nature in Italy.

Travellers falsely suppose that winter is the time to be in Italy; and my fidgetty country-people, at the approach of summer, put themselves into their comfortable carriages to leave the country with the crowd who seek gaiety and amusement in some great northern capital. The charms of summer are to them as perfectly unknown, as all but the name of summer is to the inhabitant of the north of Europe.

To a mind at ease, to a person at peace with himself, to one capable of home pleasures, or of literary pursuits, or the love of nature, this country has a thousand untried and enticing charms. The mornings are calm and peaceful, and the evenings so lovely, words are wanting to describe them, and hues to paint them. When the deep azure of the calm sea is covered with boats and vessels of every size, and belonging to every country, from the stately man of war to the graceful felucca, and the little boat covered with striped awning that skims across the bay. The sun gradually sinking behind the island of Ischia, and Procida, reflects a thousand hues upon Capri, Vesuvius, and the opposite shore of Sorrento. Each white house is to be discovered half hid in its orange-grove; each convent, each cassino is easily traced, and higher up upon the hills are seen, the lilac, purple, and orange tints of a summer sunset.

Naples in its architecture is not a fine town, but its situation round the bay is so beautiful that one is not disposed to criticise that defect. The domes of its numerous churches, the two castles, both so advantageously placed, St. Elmo on the height commanding the town, the Castel' Ovo, stretched out into the sea, and numerous white palazzos with their terraced gardens; and, upon the mountain of St. Elmo, overhanging vineyards.

> "The vine on high, the willow tree below,
> Mixed in one mighty scene with varied beauty glow."

I was contemplating this scene, this brilliant scene of magnificence, one evening in the month of July, from a garden near St. Elmo. The Prince of C——, a Neapolitan who accompanied us, did not seem to partake of my enthusiasm. He reminded me of Mayer, who looking at the same view from the garden of the Chartreuse, now San Martino, turned to the monk who was showing them the monastery, in a state of enchantment, exclaiming with German enthusiasm, "Painters and poets, where are your colours, where are your words to describe this scene!" The monk answered very quietly, "*Noi altri, non sentiamo niente.*" The Neapolitans do not either see or feel the beauties of nature; it is for us children of the north to see and feel acutely,—painfully; but for those brought up in these sunny scenes of grandeur, the magnificence of nature rather bores them than gives them any feelings of delight.

Besides the magnificence of the views of the bay, the garden where we now were, was ornamented with every shrub, from the stupendous palm-tree to the delicate cassia. Flowers of every hue and of every odour, were trained upon bowers and charmilles, or hung in festoons from tree to tree. The scarlet pomegranate, the white gardenia, all the various sorts of Cape jasmine, roses in profusion, geraniums of enormous size and growth, the passion flower bearing at once both fruit and flower. Altogether this luxury of decoration reminded me of the poetry and scenes of Lalla Rookh. An Englishman who was with us, and had lived much at Rome, differed from me in his admiration of the scene before us. "It blends not with my memory of the past," he said, "as the scenery does around Rome; it is very brilliant, I allow, but

> "There's a beauty for ever, unchangingly bright,
> Like the long sunny lapse of a summer's day-light,
> Shining on—shining on, by no shadow made tender,
> Till love falls asleep in his sameness of splendour."

This is not the beauty that speaks to my feelings. I like a countenance in country, as I do in people; and when I look at the horizon round Rome, a desolation like that of Tyre and Babylon, when I see the melancholy of the Campagna, with its long line of ruined aqueducts, all interest me more than this glow of prosperity. Those barren dark lands, with here and there patches of cultivation thinly scattered, the smoke rising as beacons of malaria near the miserable cabins, the lovely shape of the mountains that encircle those plains, and the aërial tints which hang about their heights, the ruined temples and tombs, the remains of fallen grandeur, all conspire more than these scenes to attach the imagination; and attached it does become to Rome as to a dear friend! that barren Campagna inspires more to poets and painters than such a brilliant scene as this we look on; there is a something in living upon the past that reconciles man to himself, consoles him under all deep feeling, and makes him think of death ever with tranquillity; a feeling of calm repose, of religious pensiveness, takes possession of the soul, even in the residence of modern Rome. Modern, as well as ancient poets, have sung the charms of its Campagna. Madame de Staël has called it 'La patrie des Tombeaux,' and Claude saw and painted the soft tints of Roman scenery, in preference to all others. Would the present scene we look at minister to a mind diseased? Certainly not! The contrast of its brilliancy, and the gloom of a desponding spirit, would increase all mental misery? This is a scene for the gay, the happy, and the prosperous." I answered by the words of a song—

> "Nothing is lost on him who sees
> With an eye feeling gave,
> For him there's a story in every breeze,
> And a picture in every wave."
>
> * * * * *

While thus discoursing, we left the view of the Bay of Naples, and had taken a shady walk under acacias, that led a considerable way down into the valley in the opposite direction. Over our heads were vines festooned from tree to tree, that threw a soft shade upon various coloured oleanders that grew here in profusion; and round each acacia grew hydrangeas of that dear and tender blue, so beautiful and so refreshing to behold. This walk at length opened to a glade where there were some stone pines of great size and beauty: the rose hung about their branches in festoons, and grew on them, as, in England, ivy clings to the oak-tree; and near these trees the Indian fig and the enormous aloe plant, reminded us from their luxuriant growth how near we now were to the shores and climate of Africa. Nothing is finer than the effect of these savage plants breaking the monotony of a garden, and carrying the ideas to more distant regions. Here we rested; and from between the trees we had a distant view of the blue ocean and the purple mountains of the island of Ischia. An old tower, picturesquely situated, helps to set off this lovely view. The sun was sinking upon the long line of plain, once the Elysian fields. It was there that the poets supposed the souls of the good enjoyed eternal happiness. There was anciently the burial-place for the people of Misenium; and their being obliged to convey the bodies across the dead sea, gave rise to the poetical fiction of Charon and his attributes. On the banks of this water were ranges of tombs, now opened by time to daylight. I could not help remarking to my Roman friend, that here was a country and a view as rich in recollections as any Rome could boast. On these shores we behold the ruins of seven cities which once embellished them. Beyond the dead sea is the Misenium of old, where Rome once held her fleets; and the island of Procida, a scion of ancient Greece, having been peopled by a Grecian colony from Cuma; and further on is Ischia, an extinct volcano of uncertain date. Returning back are the villages of Baja and Bauli, where ruins of temples and baths are freely scattered amongst the vines and fig-trees that are overtopped by the castle of Baja, built in modern days by Naples' famous viceroy, Pietro de Toledo, in the time of the Emperor Charles V. Here emperors, poets, orators, and beauties had their palaces and their villas. The Cento Cameralla, the Piscina Mirabilis, the baths of Nero, the tomb of Agrippina, and the temples of Venus and Diana, are all on that shore. Further back lies Torre de Patrice, the sepulchre of Scipio and Cuma, and the cave of the Sibyl. Nearer to us and to Puzzuoli are the lake Avernus, with its ruined temple, and the Lucrine Lake, so often the theme of the ancient poets. Two extinct volcanos are in its neighbourhood—the Solfatara and Monte Nuova, now a mountain of ashes, that sprung up on the site of the beautiful town of Tripugola, that lies buried within it. This eruption and earthquake, in 1538, nearly destroyed all that remained of the great city of Puzzuoli; and all that war or Spanish tyranny had previously spared. At Puzzuoli are great remains of antiquity. Its range of tombs that formed the entrance into the town (called Colombaria), the views of the bridge of Caligula, now known by antiquaries as the ancient Mole of Puzzuoli; the Temple of Jupiter and the amphitheatre, the scene of the barbarities of Nero, and of the martyrdom of Naples' favourite saint, St. Januarius—all are as interesting to the antiquary, as they are picturesque to the artist. Here was that country where nature, poetry, and history rival each other in interest—a country which no one can look at but with enthusiasm—a country of extinct volcanos—the country described by Pliny and Virgil, and the country of the gods themselves, when their presence was sought by their worshippers in temples; all is brought to the eye of the looker-on.

The sun sank gradually into the west, behind the purple peak of Ischia's Isle, while the crimson and orange streak that stained the sky, contrasted with the dark mountain opposite of the Camaldoli stands. The revolution of war had for a time dispersed the others, but it is now restored, and inhabited by monks, whose vows are to pray for the peace of souls of others. From an immense height they look from their airy cells into the town of Naples, and it is said can hear the din of the multitudes in its streets; Naples—the town in Europe where there is the least religion, though here and there superstition and bigotry remind one of its absence. The fathers possess the vineyard and gardens round the convent. The sun sank gradually, and as we watched it a thoughtful mood had crept on all the party, and we lingered long. In such hours as these the mind turns to its strongest feelings; our sigh turns inward—

> ——— "Man forgets
> His stern ambition and his worldly cares,
> And woman loathes the pretty vanities
> That mar her nature's beauty."

Sometimes one sad and engrossing idea gets possession of us, and then the present, all, everything vanishes, but *one* fatal remembrance. We retraced our steps by a walk which led to the house where the owner of this paradise resides, a man who is almost a solitary instance in this country of the south of a person who prefers country pursuits, planting, a garden, and literature, to the ambition of public life, the noise of a town, or the amusements of San Carlo—a rare instance in Italy of true philosophy. As we walked through the dark paths of the garden, the sky, of a clear blue, drew some observation from its extreme beauty; spotted with bright golden stars, it looked so clear, and excited such a general impulse of admiration, that one of our party, recollecting the magnificent passage in Coleridge's Wallenstein, repeated it.

The sound of cheerful voices, for we had got near the house, made us know that we had deviated from the path which led to the high ground that overlooks the Bay of Naples. No evening in the north of Europe, however fine, however bright, can give an idea of an Italian evening. There, indeed, through the soft, clear air, one might read one's fortunes in the stars.

When we reached the spot from which we had first set out, just enough twilight remained to make the dark masses of mountain and ocean visible, and here and there lights glimmered in the town of Naples; and from the boats of the *Lanceiatori*, scattered over the bay, a clear young English voice was heard near, singing that song of Milton's, so suited to the place and to the evening:—

> "O'er the smooth and enamel'd green,
> Where no print of step hath been,
> Follow me as I sing
> And touch the warbled string.
> Under the shady roof
> Of branching elm, star proof,
> Follow me.
> I will bring you where she sits,
> Clad in splendour as befits
> Her deity;
> Such a sumptuous queen,
> Is rarely to be seen."

We stood examining these objects with the interest that things visible, and not distinctly so, give, when the moon rose as if out of Vesuvius—rose in all its glory, like an illuminated globe, from the crater of the mountain. What a magnificent sight! What a glorious scene! we all exclaimed, as it gradually rose, and its pale light fell on the deep blue ocean. As each object came into view, we lingered on and on, not able to tear ourselves away from this lovely scene.—*Sketch Book of the South.*

ORIENTAL ORIGIN OF HERALDIC TERMS.

The names and signs employed in Heraldry are for the most part derived from the Moors, and from the tournaments of the age of chivalry. The names of the colours used are Arabian. Their etymology has been traced by a French writer in a work entitled, "*Monde Primitif.*"

Gules (red), from *Gluel*, rose, red; thus they say, *Ghulistan*, empire of the roses.

Sable (black), from *Zebel*, or *Zibel*, black.

Azure (blue), from *Azul*, colour of the sky.

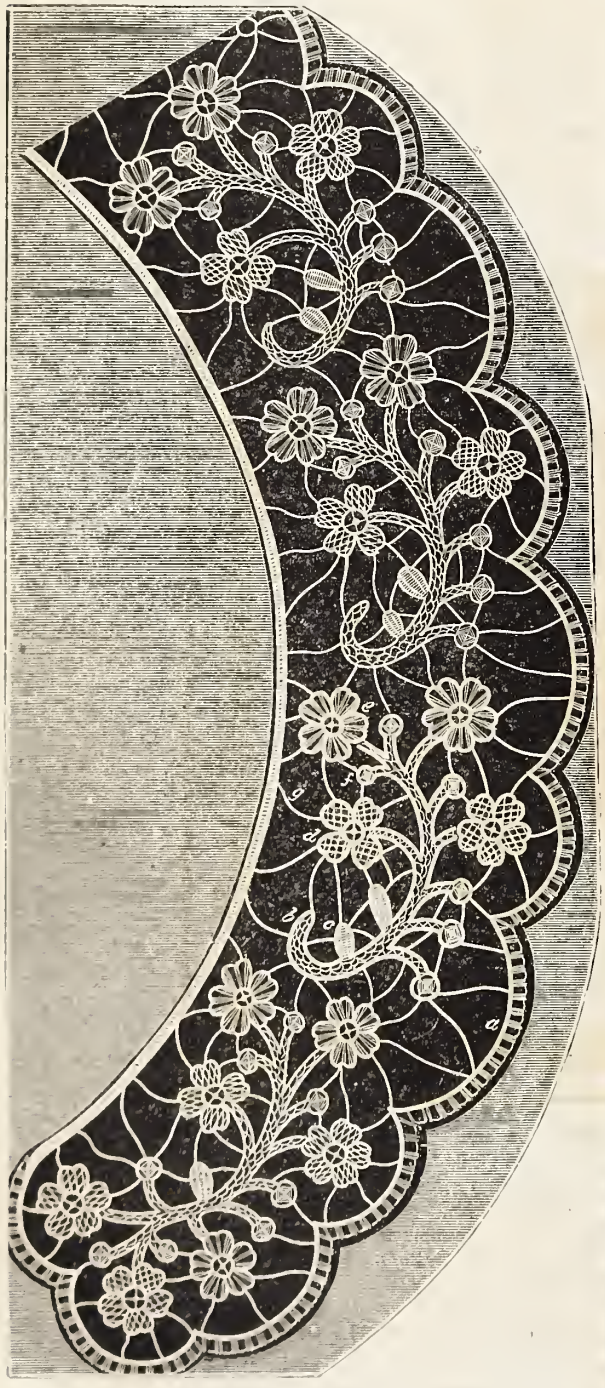
Sinople (green), from *Stin*, herb, verdure, and *Bla*, that which gives birth to the fruits of the field.

THE LADIES' DEPARTMENT.

POINT LACE COLLAR.

We here introduce the design for this beautiful piece of needle-work, a full description for working which was given in our last article of this department, pages 269-70.

COLLAR.—FULL SIZE FOR WORKING.



CHEMISETTE IN ANTIQUE POINT.

Materials.—Point lace cottons, and Mecklenburg No. 8.

The pattern of this chemisette is given one-half the size that it ought to be worked. It must, accordingly, be enlarged according to the directions for enlarging patterns.

Draw it first on tracing paper, from which transfer it to pink or green, which must be lined with alpaca. The tracing paper being so transparent, the design is as clear on the wrong side as on the right, so that by laying it first on the one side and then on the other of the coloured paper, both sides of the chemisette will be obtained.

All the outlines are done in Mecklenburg No. 8, laid on with a much finer thread. Some of the stitches are modern point, and

CHEMISETTE.



the flowers, which are filled up closely, as well as the stems whic form the foundation of the sprays, are done in antique. Th stitch used for all these is termed *foundation* stitch. It consist

of Brussels stitches worked quite closely over bars of thread, and must be done in Mecklenburg 150, the finest thread made.

Some of the open petals are filled with English lace, others with Brussels, and some with Henriquez lace, all being worked in sewing cotton No. 100. The radiating English bars are done in Mecklenburg 120. The edged Venetian in the same thread, and the Raleigh bars, which form the ground in Mecklenburg 100.

MAT FOR AN URN, IN GOLD MOSAIC.

MATERIALS.—A square of coarse French canvas, 30 yards of gold braid, an ounce of each of six shades of vert d'islay Berlin wool, and a mesh rather more than half an inch wide.

This mat is worked in one of the simplest and most effective styles of Berlin work, and as Mosaic gold braid only is used, the materials are by no means expensive. When purchasing the requisites for working it, select the braid *first*, and then choose canvas of such a size that two threads are covered by the width of the gold. Five of the shades of wool should be consecutive, that is, with the slightest possible difference between each one and the next to it; but the sixth should be two degrees darker than the fifth.

The design is a group of the leaves of the Dragon-Arum on a gold ground, surrounded by a small border of green. The mat is finished off with a raised wool border. All the veinings of the leaves are left in gold.

TO PREPARE THE PATTERN.—Sketch a group of leaves, from the design, enlarging it to any size you may desire, and transfer the drawing to thick white paper, inking the outlines as darkly as possible. Lay this under the canvas, which you will mark from it, using a camel's hair brush dipped in ink. Allow a margin of at least 50 threads, every way, for the borders.

TO WORK IT.—Cut off a length of braid and run it on the canvas, with silk of the same colour, across the bottom of the mat, immediately below the point of the smallest leaf. Put on two more lengths in the same way. Lay on a fourth, and begin working the border, with the darkest shade of wool but one. The stitches are taken across the braid, quite straight, thus crossing two threads in height and none in the width. Two such stitches are equal to a square of canvas. Where the ground is to appear, the space is left. A single row of gold, and one completely covered with wool, finish this side of the inner border.

In working the leaves, take care to shade them accurately. Each leaf is worked in two shades, the lower side in the darker tint, and the upper one a shade lighter. (See Instructions in Embroidery.) According to this rule, that part of each leaf nearest the centre of the mat is the darkest. The small leaves are done in the two faintest tints of green; the large ones in the third and fourth shades; the stem (up to the part where the leaf falls over it) in the darkest shade, and the upper part in the fifth. Each line must be worked on the braid, before the next piece is laid on, for the obvious reason that otherwise the ink marks would be covered. The sides of the inner border must be worked to correspond with the end, allowing six threads of plain gold between it and the leaves.



MAT FOR AN URN.

The raised border is worked on the mesh, beginning twelve threads from the outer row of braid, and using the darkest wool. Then the others are worked in regular order, the lightest joining the inner border. It must then be cut and combed, to produce the even velvet-like surface proper for such work.

A strong card-board should be placed between the mat and the lining, to make it stronger, and more durable.

DIRECTIONS FOR WASHING TATTING.

Cover a wine-bottle or jar with stout calico, over which stitch the work very evenly; cover that again with book-muslin, wash it well with white soap, and then rub it with a good deal of starch. Allow it to dry a little, then clap it between the hands to clear the loops—place it between clean linen cloths, and iron it well. Iron it in one direction, not up and down, as it would displace the picots.

Properly washed, tatting looks as nice as when quite new.

SPLITTING A BANK-NOTE.

Some time ago the commercial world was taken by surprise by the announcement that a certain scientific gentleman could actually split a bank-note so exactly into halves, that it was impossible to distinguish the separate pieces of paper from genuine notes. The authorities of the Bank of England took alarm; for it appeared that this invention would speedily open the way to a new kind of fraud. The imitation of the engraved plate, however well performed, was always discoverable by experienced eyes; and he must be a good forger indeed who could prepare the paper on which the plate was printed so as to imitate the the peculiar water-marks on the Bank of England note with anything like success. But here was a discovery which set at nought the precautions of paper-makers, engravers, and printers. It was really a serious matter. A long correspondence ensued between the proprietor of the secret and the officials of the bank —the former asking a large sum of money for his knowledge, and the latter requiring actual proof of his ability to perform the alleged feat. Paragraphs began to appear in the newspapers, and public attention was drawn to what seemed a very extraordinary fact—that the thin tissue paper of which a bank-note is composed could be really divided into two leaves. It became necessary to test the truth of this remarkable discovery; and so it was arranged that trial should be made with an actual note of the Bank of England. Preliminaries were settled; and a note properly marked so that it might be afterwards identified, was submitted to the inventor. In the course of two or three days back came the note to the owners, actually split in two. It was eagerly examined, but in a little time the bank officials ceased to feel any alarm, and confidence in the commercial world was quite restored. It was true that the bank-note was completely split, but it was also true that on only one half of it was the printed impression sufficiently plain to allow of its being circulated. Any attempt to pass the other, or back half, of the note would, it was declared be immediately detected. still the discovery was curious, and *might* lead to disagreeable consequences should any persons attempt to increase their wealth by means of split bank-notes. Another kind of ink was therefore ordered for the future to be used in the printing of the bank securities, so that in case any one chose to try the experiment, the one half would be left blank.

The secret, however, did not remain long hidden from the world. Indeed, its very simplicity seems to have prevented its being discovered by the clever men who felt so much anxiety about. The method of splitting the paper of the thinnest texture is just this: two pieces of calico are firmly cemented on to the sides of the paper, leaving the ends of the calico loose, and the whole is perfectly dried. By a gentle and equable pull on each side, the paper is split into halves, one of which adheres to the calico on the one side and the other to the opposite. The adhesion between the paper and the cloth being greater than that of the surfaces of the paper to each other, is the cause of this phenomenon. Having now divided the bank-note or other piece of paper, the two halves may be removed by damping and so loosening the paste between the calico and the paper. Of course, the secret is no longer the property of one person. In the Exhibition of 1851, Mr. John Kirby, of Lambeth, and Messrs. Leighton, the bookbinders, had several specimens of split paper; and it appears that the discovery of this property in paper may be turned to many useful purposes—one of which is, the removal of letter-press printing from the back of wood and other engravings.

THE ODOUR OF PLANTS.

The most favourable time for ascertaining the vast variety of the odours of plants is the evening after the setting of the sun, the heat of the day preventing them sending forth their aromatic scent during its continuance.

Their various odours are methodically classed into seven distinct divisions, which are recognised by nearly all botanists. 1st, the *aromatic odour*. This includes the laurel, the orange, and the whole of that class of plants; 2nd, the *sweet odour;* this is extremely grateful and pleasant, such as is caused by the flowers of the linden, the jessamine, the nightshade, the rose, &c.; 3rd, the *ambergris*, or *musk*,—namely, geraniums, exotics, and others of that species; 4th, the *alliacee* odour, which characterises nearly all kinds of lilacs; 5th, the *fetid* odour which distinguishes certain plants; 6th, the *soporific* odour, such as is sent forth by opium; and 7th, the *nauseous* odour, caused by venomous plants. We have but an inadequate idea of the power of these botanic exhalations, in many cases these odours produce disease and sometimes death. Sleeping in a room where plants are kept is particularly dangerous.

COST OF WATER IN THIRTY-TWO TOWNS.

The following "tabular statement of the cost of water in thirty-two towns," visited by William Lee, superintending inspector, with the prospective cost of water in the same places for thirty years, under the Health of Towns Act, will be found interesting. Prefixed to the table are the following remarks:—

"In considering the following table, it must be borne in mind that the sums of money placed under the head 'Present supply of water' are deducted from the evidence of the inhabitants themselves, and represents a very limited quantity of water from sources very commonly polluted with animal and vegetable refuse, and frequently containing a large quantity of earthy matter in addition; that the water is generally hard, unfit for cooking, and wasting a large quantity of soap and labour in washing; a supply which is the worst in quality and most deficient in summer, when plenty of pure water is most needed, which is often frozen up for weeks during winter; with pumps sometimes out of repair for months, and for water carried often from very considerable distances; a supply precariously eked out by cisterns, and casks containing rain-water from house-roofs, mixed with soot and other impurities, and frequently vapid, stinking, and unwholesome. The sums named under the head 'Proposed cost,' &c. &c., are for supplies of pure water, with a tap in every house constantly on at high pressure. The last column shows the annual saving to each place in money alone, irrespective of improved health and comfort, from the construction of proper works.

Place.	Population.	No. of Houses.	Present Cost of water per week.			Proposed Cost under the Public Health Act.			Ann. Saving.
			First Class.	Second Class.	Cottages.	First Class.	Second Class.	Cottages.	
			d.	d	d.	d.	d.	d.	£
Market Harbro'	2667	478	$3\frac{1}{4}$	$3\frac{1}{4}$	$3\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	181
Great Bowden...	1320	265	$3\frac{1}{4}$	$3\frac{1}{4}$	$3\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	100
Little Bowden...	508	92	$3\frac{1}{4}$	$3\frac{1}{4}$	$3\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	51
Ashby de la Zouch	4175	835	$5\frac{1}{4}$	$5\frac{1}{4}$	$5\frac{1}{4}$	1	1	1	768
East Retford ...	2860	608	$2\frac{3}{4}$	$2\frac{3}{4}$	$2\frac{3}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	164
West Retford ...	643	127	$2\frac{3}{4}$	$2\frac{3}{4}$	$2\frac{3}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	36
Clarborough ...	2302	363	$2\frac{3}{4}$	$2\frac{3}{4}$	$2\frac{3}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	98
Ordsall	1108	133	$2\frac{3}{4}$	$2\frac{3}{4}$	$2\frac{3}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	36
Bacup	8000	1500	$10\frac{3}{4}$	$6\frac{3}{4}$	$3\frac{1}{4}$	$1\frac{1}{2}$	1	1	812
Swaffham	3414	700	19	19	19	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	2654
Loughborough	11000	2410	3	3	3	2	$1\frac{1}{2}$	1	785
Knighton	1428	261	$3\frac{1}{4}$	$9\frac{1}{2}$	$9\frac{1}{2}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	439
Mileham	532	122	$4\frac{1}{2}$	$4\frac{1}{2}$	$4\frac{1}{2}$	$1\frac{1}{3}$	$1\frac{1}{2}$	$1\frac{1}{3}$	79
Godmanchester	2152	472	$4\frac{3}{4}$	$4\frac{3}{4}$	$4\frac{3}{4}$	2	2	2	244
Epsom.....	4200	634	$4\frac{3}{4}$	$5\frac{1}{2}$	$5\frac{1}{4}$	2	$1\frac{1}{2}$	1	412
Holbeach.....	3250	650	$6\frac{1}{4}$	$2\frac{1}{3}$	2	2	2	2	281
Newcastle-under Lyme	10432	1999	9	5	4	$9\frac{1}{4}$	$2\frac{1}{2}$	$1\frac{1}{3}$	999
Burslem	17503	3529	9	5	4	$9\frac{1}{4}$	$2\frac{1}{2}$	$1\frac{1}{2}$	1769
Nantwich	6000	1034	$7\frac{1}{2}$	$2\frac{1}{2}$	$3\frac{1}{3}$	2	$1\frac{1}{2}$	1	476
Ely	7603	1552	$7\frac{1}{2}$	3	$2\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	504
Litton	864	154	7	7	7	1	1	1	200
Diss	3470	700	8	$3\frac{1}{2}$	3	2	$1\frac{1}{2}$	1	303
Reading	22715	4260	12	6	$2\frac{1}{4}$	2	$1\frac{1}{2}$	1	5859
Gainsborough...	8154	1715	7	$3\frac{1}{2}$	$2\frac{3}{4}$	2	2	$1\frac{1}{2}$	659
Yarmouth	28019	6050	$6\frac{3}{4}$	4	$3\frac{1}{4}$	2	$1\frac{1}{2}$	1	3480
Gaywood.....	1208	255	7	4	4	2	2	$1\frac{1}{2}$	110
Alfreton	2000	350	4	6	$4\frac{1}{2}$	2	$1\frac{3}{4}$	1	94
March	6296	3107	6	4	$3\frac{1}{2}$	2	$1\frac{1}{2}$	$1\frac{1}{2}$	707
Selby	6190	1138	$7\frac{3}{4}$	$3\frac{3}{4}$	2	2	$1\frac{1}{2}$	1	493
Norwich	62344	16383	$12\frac{1}{2}$	$4\frac{1}{4}$	$2\frac{3}{4}$	2	$1\frac{1}{2}$	1	8294
Worksop	4025	854	8	3	3	2	$1\frac{1}{2}$	1	379
Wisbeach	8530	1935	$6\frac{3}{4}$	5	5	2	2	$1\frac{1}{2}$	1491
Total	244913	52875	...	...	...	...	...	...	3295

THE LONGEVITY OF TREES.

Many of our forest trees require a long series of years to arrive at their full height and vigour. The oak, the elm, and the cedar are of this class. Others, on the contrary, are distinguished for a more rapid growth, but their wood is tender and light, and does not possess any of those characteristics which render the wood of other trees so valuable. Among these are the Poplar, the Acacia, &c. The general height to which forest trees attain is about one hundred and twenty feet, and their circumference is rarely less than twenty or five and twenty feet. If placed in favourable situations they flourish for a very long period, the olive commonly attains three hundred years, and the oak more than double that period.

In such trees as the pine, the fir, and the oak, a fresh layer of wood is formed every year, and as this process is preserved with the greatest regularity, the naturalist is furnished with the surest evidence of the age of the tree which he examines. By this means some curious and interesting discoveries have been made. Thus, in the Cape de Verd islands a Baobab tree was found, measuring one hundred feet in circumference, and which was proved to have existed for more than six thousand years. This would render it contemporary with the first man, and make it, perhaps, the only remaiuing specimen of that wonderful vegetation which the new-made world brought forth at the word of God.

In the neighbourhood of Mont Blanc there is a fir-tree still remaining, called by the people of that district the *Chamois Stable*, because it affords a shelter to the wild goats during the winter. Its enormous trunk and beautiful vegetation make it a remarkable and interesting object, especially when it has been ascertained by M. Berthelet that it is more than twelve hundred years old. At a short distance from this ancient fir is found, in the forest of Ferré, a tree called the Meleze, which measures around the top of the root eighteen feet. The age of this tree cannot be less than eight hundred years.

The forest of Parcy-Saint Ouen, canton de Bulgneville, in the department of the Vosges, is famous for a tree called *The Oak of the Partizans*. Its height is one hundred and seven feet, while its gnarled branches extend over the space of a hundred. It has been in existence six hundred and fifty years, and was known at the time when the bands of the Cothereaux, the Carriers, and Routiers devastated France in the old days of Philip Augustus.

A chestnut-tree near the village of Vernet, of ordinary size and height, is supposed to have been planted in the time of Calvin, at the dawn of the great religious struggle in Switzerland.

The monuments erected by the hand of man in an age which we call antiquity, lose their interest and become insignificant before these veterans of vegetation. They speak to the imagination far more powerfully than any cast-down temple or ruin. The columns overthrown, the wreck of history, the monuments of a day, sink down before the strong tree of the forest. Struggle after struggle, battle after battle, goes on in the world's arena, and one after another its heroes perish, but the organic development of the tree proceeds without interruption, and each year it gives to the world much more than it receives.

ARTIFICIAL EGG HATCHING.

An invention by a French gentleman named M. Vallée, for the purpose of hatching the eggs of various animals by the application of artificial heat, has been placed in the Jardin des Plantes at Paris, and has recently attracted a good deal of attention. He calls it the "*couvoir perfectionnée.*" It is made of wood, and is composed of a large square box, and a projecting drum or cylinder at the side. The former is about two feet and a half in breadth, and about three feet in height. It is divided into three compartments or chambers; one of which (D) contains the eggs about to be hatched; the other above this one (B) may, if necessary, be applied to the same purpose, but usually it is appropriated to the reception of the young ones immediately after they emerge from the shell. It has a lid which opens something like that of a snuff-box, by means of hinges placed behind, and is glazed in front. The third compartment at the bottom (E), somewhat resembling a cage, is used as a sleeping-place for the chickens during the first five days of their existence. A sash with wire grating extends across a third of the surface in front. At F is a sliding panel. The cylinder at the side is the same height as the body of the machine, and by means of four hooks, two upon each side, it fixes itself to it, so as to be impervious to the air. In this cylinder is contained the heating apparatus. The part indicated by L, is filled with water; and a lamp is placed underneath, so as to maintain any temperature that may be desired. Two grooves are placed at each side, in which is a sliding door (P). The lamp is fed with oil, having burners and wicks upon Socatelli's plan, and will burn for thirty hours without replenishing. The cylinder is made of zinc, and contains about two gallons of water. Two thermometers are used, one of which is inserted in the cylinder T, the scale appearing at the side of the funnel at O; the other is placed in the principal drawer under the eggs.

The heat is maintained by the circulation of the water. When its temperature is raised to a certain degree by the lamp, it of course expands, or rises in the cylinder, till it reaches the opening of a zinc pipe, through which it passes into a shallow, but wide basin placed between the upper and lower drawers. From this it passes again downwards, by means of another zinc pipe, into which it enters at the right end of the machine. It then enters into the lowest compartment of the machine, passing along its whole length, and once more enters the heating cylinder to go through the same process again.

The upper part of the machine is traversed by another pipe, the upper extremity of which may be seen at A. The lower reaches to the level of principal drawer at D. This is a sort of ventilator, serving to admit air whenever the temperature becomes too high. It can be opened or closed at pleasure by means of an ordinary cork or stopper. There are other air-pipes also, which pass from the heating apparatus horizontally to E, and thence upwards to D, for the purpose of introducing hot air into the principal drawer. Upon each of two sides of the machine there are eight circular openings or valves, each about a quarter of an inch in diameter, four of which are placed at the upper part of the glazed compartment, and four at that of the middle drawer. Those on the right are for the introduction of cold air, and those on the left that of hot air. They are opened or shut also, by means of corks or stoppers, and the alternate currents of warm and cool air to which they give entrance, are indispensable for the complete renewal of the air in the interior.

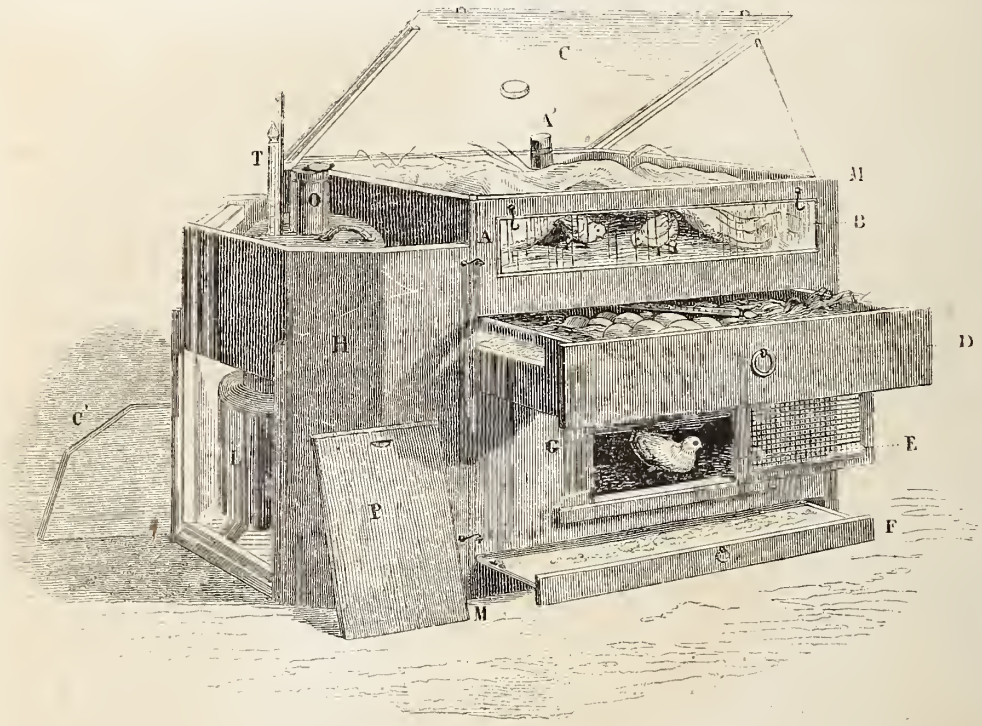
The hatching machine, notwithstanding its apparently small dimensions, can contain upwards of one hundred hen-eggs, and has hatched not the eggs of birds or fowls only, but those of reptiles also. It has successfully hatched great numbers of the eggs of pheasants, partridges, hens, ducks, pea-hens, geese, and guinea-fowl; also of adders, vipers, green and yellow lizards, and more recently those of a tortoise. This is the first time that the eggs of the last-mentioned animal have ever been artificially hatched. Three of its eggs were placed in the machine, but in the case of one only was the experiment successful. Our engraving gives the egg and the young animal in life-size, as the latter appeared when issuing from its prison by an aperture made in *the side* of the shell. This is a physiological fact worth notice, as the young of birds always make their way through the end of it. The egg of the tortoise took sixty days in hatching. It was placed in the machine on the 14th of July, and the young one made its appearance on the 14th of September. In its natural state the tortoise lays its eggs in the middle of summer, and deposits them, generally varying in number from two to four

in a hollow in the ground, and covers them up with sand or clay, in a place exposed to the sun's rays, and takes no further care of them. In autumn the young ones make their way out unaided. The fact that the care of the mother was not necessary to the process of incubation, made it evident, that by a careful observation of the temperature of the regions in which tortoises are found, it might be successfully carried on in the hatching machine. The event has answered expectation, and has at the same time furnished to naturalists a fact of which they were previously ignorant,—namely, the length of time which is occupied in the hatching of the eggs of this animal. Similar information has been acquired with regard to the eggs of various others. The eggs of the water-adder were placed in the drawer, buried in clay, and covered with moistened linen or sponge on the 25th of June, 1846. The temperature was then raised to 67° or 70° Fahrenheit. They were hatched on the 26th of July following, just thirty-one days after. On another occasion, the eggs of the same animal, placed in the machine on the 30th June, were not hatched until the 2nd August, a difference which was doubtless owing to some slight want of uniformity in the temperature, and showing the great care which the process requires.

Many other experiments have given similar results. But there is one thing worthy of remark in connexion with the eggs of some reptiles. Some of these, the time of the hatching of which, by the natural mode, is known to be from 56 to 60 days, when enclosed in earth, and kept moist by wet sponge or linen, and, placed in the hatching machine, take only 30 or 32 days for the appearance of the young. Other experiments have given the following results:—

Pheasant	25 days.
Partridge	24 „
Hen	21 „
Common duck	28 „
Barbary duck	30 „
Pea-hen	28 „
Goose	30 „
Guinea-fowl	25 „

It may thus be seen that the machine hatches the hen's eggs four or five days sooner than she herself can.

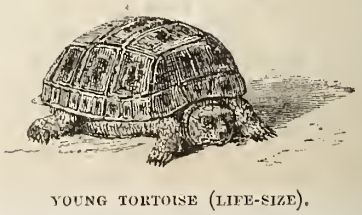


ARTIFICIAL HATCHING MACHINE.



TORTOISE EMERGING FROM THE EGG (LIFE-SIZE).

As soon as the process becomes better known, and, doubtless, simplified and made less expensive, it will, we venture to say, be extensively used in the country, as a good means of increasing a very important part of the income of the farmer's wife. The hen, as every one knows, often breaks her eggs, or abandons them, or kills the chickens; and the time she spends in sitting and rearing her young, varying according to the season, or for other reasons, from three to four months, is lost, as far as laying is concerned, as, if she were not allowed to hatch her eggs, she would soon begin to lay again.



YOUNG TORTOISE (LIFE-SIZE).

A profit might be made in this way, also, from the eggs of grouse, partridges, &c.; and in a scientific point of view the hatching machine is of great value. It has been already employed to some purpose in making embryological researches, and will, doubtless, from time to time, be the means of making known to us many facts relative to the physiology and habits of certain species of animals with which we are at present unacquainted.

A hatching machine, much upon the same principle, is being at present exhibited in Leicester-square.

TITIANO DI VECELLI.

In the small town of Pieli, situated on the confines of the Piuli, in the midst of wild mountain scenery, Titian was born in the year 1477. He began very early to give evidences of his taste for drawing, and at the age of ten years designed a figure of the Virgin in the juice of flowers, the only colours within his reach. He was sent the same year by his father to a maternal uncle who resided in Venice, and he here became the pupil of Giovanni Bellino, in whose house his uncle placed him. Lanzi states, however, that he learnt the rudiments of his art from a painter at Trevigo, named Sebastiani Zuccati, and that he became an imitator of Albert Dürer, who visited Venice in 1495, and again in 1506. The pictures painted during the first few years of his career as an artist, display, as might naturally be expected, much of Bellino's style. "Tobit and the Angel," the "Birth of Christ," and the "Portrait of Catharine Cornaro," queen of Cyprus, who had left her kingdom to the republic of Venice by will, all display proofs of this. The "Presentation of the Virgin" Mary in the Temple" was painted at this period, and notwithstanding the youth of the artist, is a striking monument of his genius. It was twenty-two feet in length, and contained a great, number of portraits, amongst others those of Andrea Franchescini grand chancellor of Venice, in a scarlet robe. By the side of the steps leading to the temple is an old countrywoman with eggs and fowls in a basket, so true to nature as to be quite a deception, and said to be the likeness of one who frequented the Rialto at Venice. The background is a grand mountainous landscape, with a large and very striking light in the sky, and the colouring is extremely rich.



THE CASKET, FROM A PAINTING BY TITIAN. DRAWN BY STAAL.

At the age of eighteen Titian became intimate with the celebrated Giorgione, who was a fellow pupil, and an inmate of Bellino's house. The personal beauty of the latter, his fame as a painter, and his exquisite skill in playing on the lute, had already won him the smiles and favours of the Venetian aristocracy, from whose exclusive circles his low birth would otherwise

have excluded him. A trifling cause gave rise to serious coolness between them. The breach thus made was never thoroughly healed, but they became every day more and more estranged from one another. But Titian had not enjoyed his friend's society without reaping some advantage from it. He improved upon the hints with which he had furnished him, and aided by these not less than by his own exquisite natural perception of colouring, he produced works of such brilliance and delicacy that his fame soon began to rival, if not eclipse, that of Giorgione. So great a resemblance did there exist at one time between their styles, that a portrait of a friend of Titian's would have passed as a work of Giorgione, had not the name of the artist been inscribed upon it.

Titian was now the admired of all admirers. His great talents attracted the attention of the nobles, and caused him to be a constant guest at their palaces. More than one haughty lord and fair dame sat to him for their pictures; and in that witching clime it may be well believed, that the favouring glances of the latter were ever even more welcome than the protection and patronage of the former.

The two artists had now become rivals, but Giorgione displayed a grandeur and loftiness in his conceptions which Titian never reached. He never looked at a model, but trusted to the inspiration of his own soul to guide him, and was the first to rise above the tame beauty of Bellino's colouring to a full understanding of the principles which should regulate the chiaroscuro. Titian was about this time employed to paint in fresco the façade of the Exchange on the Grand Canal, where the German merchants met; the opposite front, facing the canal, was assigned to Giorgione. The former chose for his subject female figures and boys; and over the door represented Judith with the head of Holofernes, admirably coloured. The work was done in competition, and is stated in some accounts to have been the final cause of the estrangement between the two great masters. It is said that some of the Venetians having praised Titian's work to Giorgione, believing it to be his own, he became so jealous of him that he dismissed him from his house, and broke off all intercourse with him. This littleness of mind is quite characteristic of all men who pursue any calling, however noble or elevating in itself, with a view to fame merely.

Titian now for the first time paid a visit to Rome, and studied the works of Raphael and Michael Angelo, and took lessons also in design. He was afterwards invited to Vicenza, where he was engaged to paint the "Judgment of Solomon," for the Palace of the Duke; but this was unfortunately destroyed when the palace was burnt. He also visited Padua, where he painted a "St. Mark," in oil; and on the walls of the room in which he lived, "The Triumph of Faith," executed with great skill and vigour. The infant Saviour is being carried by St. Christopher, in the midst of a long and glorious procession of the prophets, saints, and martyrs of his religion. He was also employed here by the convent of St. Anthony to paint three pictures of miracles performed by that saint. The incidents in the three subjects are so outrageously monkish and improbable, as to make us almost regret that a Titian should ever have employed his pencil upon them, but the manner in which the work is executed makes us forget to find fault with this.

In the year 1511 he returned to Venice, arriving on the day before the Ascension, on which the republic celebrated with great pomp and splendour her victory in 977 over the piratical city of Narenta on the other side of the Adriatic. He was glad to arrive on a day of general festivity, when the doge was to wed the "green-haired Adriatic," as a token of perpetual dominion over her, for with Venice were connected the dearest and tenderest recollections of his life. Here he met Ariosto, the poet, the author of the "Orlando Furioso," one of his most intimate friends, who had declared in his immortal work, that Cadore derived no less honour from Titian, than Venice from Giorgione, or Urbino from Raphael.

——— "E Tiziano che onora
Non men Cador, che quei Venezia e Urbino."

While staying on this occasion at the house of his friend, he painted a fine portrait of him, which may still be seen in the Hall of St. Mark. But the first news that greeted him on his arrival was that of Giorgione's death, who had fallen a victim to the plague before his arrival. As Titian was so well acquainted with his method of laying on his colours, he was employed to finish many pictures which his old companion had begun. At the death of Bellino, also, he finished for the Sala di Consiglio at Venice, a large historical work, the subject of which is, Frederick Barbarossa on his knees making submission to Pope Alexander III., who is putting his foot on his neck. Frederick Barbarossa was so called from the colour of his beard, and succeeded Conrad in 1152. The pope was besieged by him in Rome in 1167, and after a war of long continuance, peace was made in 1177, but it is very doubtful whether the incident here referred to ever took place. This picture was in 1772, in the sacristy of the Chiesa della Salute, at Venice. The draperies are said to be hard and cutting, in consequence of Titian's endeavouring to imitate a work of Albert Dürer, which had just then been brought to Venice.

About this time Alphonso I., duke of Ferrara, invited him to his court, and while there he finished a "Bacchanal Scene," which had been begun by Bellino, and he painted two others of the same size to complete the decoration of the apartment; one, the "Triumph of Bacchus," and the other a similar subject. The former is considered one of the greatest triumphs ever achieved by art. It is sometimes called "Bacchus and Ariadne," and is thus described by Ridolfi in his life of the artist: "There is such a graceful expression in the figure of Ariadne—such beauty in the children—so strongly marked, both in the looks and attitudes, is the joyous character of the licentious votaries of Bacchus—the roundness and correct drawing of the man entwined with snakes—the magnificence of the sky and landscape, the sporting play of the leaves and branches of the most vivid tints, and the detailed herbage on the ground, tending to enliven the scene, and the rich tone of colour diffused throughout, form altogether such a whole, that hardly any other work of Titian can stand in comparison with it." Every part of the work is finished with immense care, and the smoothness in the flesh is such, that the touches of the brush are not to be distinguished, which shows how much he had improved upon Giorgione. Sir Joshua Reynolds, in one of his lectures at the Royal Academy, says, that "this picture has been much and justly celebrated for the harmony of the colouring." We are happy to be enabled to add, that our readers may have an opportunity of examining it for themselves at any time, as it is now in the National Gallery. It remained a long time in the Aldobrandini palace, until it was purchased by an English gentleman named Irvine for the sum of 9,000 crowns. It afterwards passed into the possession of Lord Kinnaird, and then into that of Mr. Hamlet, from whom it was purchased in 1826, and presented to the nation.

As volumes have been written upon his works alone, it will not be expected that we should notice a twentieth part of Titian's paintings. Perhaps no other artist has left so many behind him, owing to his long life, robust health, and indefatigable industry. During the remainder of this brief sketch, therefore, we shall confine ourselves chiefly to a mention of the leading incidents of his life.

He was now in his prime, and his fame had spread over the whole of Europe, but like many great men his labours met with but very poor remuneration until he had attracted the notice of Charles V., and other illustrious persons of the time. By order of the senate he painted the Doge Andrea Gritti on large canvas, as well as a number of his predecessors, and for this work a rent of 100 crowns on the Exchange of the German merchants was bestowed upon him, upon condition that he should from that time, execute the portraits of the Doges at eight crowns each. All these were afterwards destroyed by fire. His friend Ariosto having heard from him how poorly he was remunerated for his labours, and of the indigent circumstances in which he sometimes found himself, exerted all his talents and influence to bring him under the notice of the neighbouring princes, and was so far successful, that when Charles V. came to Italy to receive the crown from Pope Clement VII. he sent for Titian, and commissioned him forthwith to paint his portrait, on horseback, and as large as life. This is now in the King's Supper-Room of the new

palace at Madrid. He also took portraits of two of his generals, who bestowed large rewards upon him, and on his return to Venice the emperor presented him with a thousand crowns, and gave him repeated assurances of his favour and protection. During a visit which he paid to Milan, he painted for the church of S. Maria della Grazia, one of his most celebrated works, an engraving of which has been already given in the ILLUSTRATED EXHIBITOR, and by mistake ascribed to Murillo. It represents the soldiers in the act of mocking our Saviour, and forcing down the crown of thorns on his head. The contrast presented between the calm, meek, and resigned expression of Christ's face, and the ferocious mockery depicted on those of the soldiers, cannot be surpassed. This is considered one of Titian's greatest works; it has met with universal admiration, and procured for him the title of one of the "Patriarchs of Art." It was carried away by the French when in Italy, and placed in the Museum at Paris; and as it was hidden on the entrance of the allied armies in 1815, it was not restored, but still remains there. Titian's reputation was so greatly raised by this work, that all the sovereigns of Italy became emulous of the honour of having him in their dominions. In 1548 he went to Rome at the invitation of the Cardinal Farnese. Apartments were assigned him in the Belvidere Palace, and during his residence here he was visited by Michael Angelo, in company with Vasari his biographer. They inspected a picture of Danae, which had just been finished, and on which Michael Angelo bestowed the highest commendations. He remarked, however, after leaving, that it was to be regretted that the Venetians were not sufficiently versed in drawing, and had not a better mode of study, and added that had Titian been as well acquainted with art, as he was with nature, he could not have been surpassed. But he had not at this time seen any of Titian's best works, for when he fled from Florence to Ferrara, fearing the return of the Medici, Duke Alphonso showed him several of Titian's paintings, and he exclaimed in rapture, "that he never before believed the art could arrive at such a pitch of excellence, and that Titian alone was worthy to be termed a painter." Such an eulogium coming from such a man, is alone sufficient to stamp the works of any artist with immortality.

About the end of the year 1547 he was invited to Germany by Charles V., and joined the court at Innspruck, in the Tyrol. He took with him a fine picture on stone of a dead Christ, and beautiful Venus. The emperor was now very old, and sat for his portrait for the third time. During the sitting Titian dropped one of his pencils, and Charles immediately stooped and picked it up. Titian was surprised and embarrassed, and stammered out an apology, saying how unworthy he was of such an honour. 'Titian," was the emperor's reply, "is worthy of being waited on by Cæsar." He received one thousand crowns for each of these portraits; and as a further reward was created "Cavalière," Charles himself buckling on the golden sword, and at the same time conferring on him the title of Count Palatine, and granting letters of nobility to himself and his descendants. To support his new rank, he was assigned an annuity of five hundred crowns on the chapter at Milan. Some of the courtiers were displeased at the emperor bestowing upon him so many marks of favour, and sneered at his associating so much with a painter; and this having reached the ears of the monarch, he exclaimed "that he could find princes enough, but there was only one Titian."

After the death of Charles, Titian continued for some time in the service of his successor Philip II., for whom he executed a great number of works of the highest excellence. Some uncertainty prevails as to the time of his return to Venice; but in 1566 Vasari, his biographer, found him living in the Barberigo Palace, on the Grand Canal, where he remained for the rest of his life. He had lost most of the friends of his youth; Giorgione and Bellino were dead many a year before, and Ariosto, whose triumphs in another branch of art, were destined to perpetuate his name and memory to all coming time, had been resting for thirty years in his grave. Titian had survived them all, and in green old age was going down to the grave laden with honours, and revered by all who knew him. The magnificent creations of his lofty genius were on the walls of all the splendid halls and gorgeous palaces of the princes and potentates of Europe, and were gazed upon with rapture by the simple as well as by the wise. Wherever art was spoken of, and admired,—in the student's room, in the monk's cell, and in the abodes of royalty, his name was familiar as household words. The emperor of Germany, the kings of France, of Spain, and of Rome, the pope, the cardinals, and the doges of Venice, and all the proudest of the proud Italian aristocracy were his intimate friends. All the great generals, the great architects, and learned men of the day eagerly sought his society. Ariosto is supposed to have received guidance and almost inspiration from conversing with him. Annibal Caracci bestowed upon him the highest praise. Vandyck called him the "Prince of Painters," and laboured hard to imitate him. Tintoretto was his pupil and devoted admirer. The republic of Venice, when laying a heavy tax upon all the inhabitants without distinction of rank, in preparation for a war with the Turks, specially exempted him, on account of "la sua rara eccellenza."

The latter years of his life were passed in the society of his friends, and the pursuit of his art. He was surrounded by affluence, and everything that the human heart can desire on this side the grave. Men from all parts thronged to Venice to pay him homage, and were no less delighted by the graceful courtesy of his manners, and the dignified humility of all that he said or did, than awed by the greatness of his genius. During the early part of his life he had a mistress named Violante, whose frail beauty he has so well perpetuated in many of his Venuses.

The period of his marriage is not known. In addition to Orazio and Pomponio, his sons, and Cornelia his daughter, he is supposed to have had other children, from whom many of his portraits were taken; but on this head nothing can be affirmed with safety. The figure in our engraving is supposed to represent one of his daughters holding up a casket containing her nuptial apparel.

He had now wealth, and fame, and glory; he had lived for a century in intimate connexion with all the great men of his time. He was the idol of Venice, and the admired of foreign nations. One of his friends said to him, "You afford a singular instance of a life of unclouded happiness." Titian replied, "There is no such life here; but the bitterest pangs I have known have arisen from the alienation of friendship, and from that rivalship and jealousy which are too common in the arts."

In 1576 the plague broke out at Venice, and he and his son Orazio were amongst its first victims. And thus he died at the age of ninety-nine. He left a painting of David unfinished, the outlines of which seemed as spirited and vigorous as any of those executed in his prime. His brother artists wished to celebrate his funeral obsequies with great pomp and magnificence, and although owing to the prevalence of the plague no funeral ceremony was allowed by the senate, an exception was made in his favour, and he was buried in the church of Santa Maria dei Frati, at the foot of the Altar of the Crucifixion. A marble slab covers the spot where he lies, on which the visitor may read:—

"Qui giace il gran Tiziano di Vecelli
Emulator di Zeusis e degli Apelli." *

It is said that in the silver basin, which the young girl in our engraving holds in her hands, Titian had at first painted a gory head, intended to be that of John the Baptist; and that it is for this reason that she is seen holding her head away, as if to avoid the sight of it, and only touching it as little as possible lest her white fingers should be stained by the blood; that he afterwards repented, and placed in it a rich casket studded with precious stones. Perhaps he did not altogether like, to see the image of death so near the graceful features which tradition alleges to have belonged to his daughter. It is more probable, however, that, if such a change was ever made, it was in obedience to the wish of the prince for whom the picture was painted. The turn of the head can easily be accounted for in any case, by the fact that Titian prided himself upon his accurate delineation of the human ear, and often placed his figures in such positions, that this organ might be distinctly visible.

The daughter of Titian is said to have been as amiable and

* "Here lies the great Titiano di Vecelli
The rival of Zeuxis and Apelles."

clever as she was beautiful, and, happier than Tintoretto; he did not survive her. His female portraits would form an admirable collection were it possible to bring them together. What a splendid sight to behold in one room the tender brilliancy of Laura Bianti; the spirited and charming, but maligned Lucrezia Borgia; the dignified Giula di Ponte; and the amiable and learned Signora Irene; and many others from all parts of Europe, whose charms that sublime pencil has immortalised!

THE BOA CONSTRICTOR.

The great nursery of the reptile race is found in tropical regions. Tangled forests, impenetrable jungles, morasses teeming with luxuriant vegetation, and mouldering ruins overgrown with brushwood and creeping plants, are their favourite places of abode. There they not only exist, but swarm; there the most gigantic of their tribes rears its resplendent form; and there thousands of every size and hue astonish or alarm the passer-by.

Some species, slender as whipcord, and of great length, twine around the twigs and boughs of trees and shrubs, their tints amalgamating with the colour of the foliage that conceals them, while rapidly and silently they glide even to the tops of the America. Analogous facts concerning a serpent called Bajo are found in "The History of the Orinoco;" and a multitude of others of the same kind are given in the various works of credible travellers.

The Latins are said to have given the name of Boa to serpents of extraordinary magnitude, from the idea that these reptiles drained the udders of cattle in their pastures; and though the notion is unfounded, the name, from its being convenient and long established, is still retained by modern naturalists. First applied by Linnæus to the huge serpents inhabiting the tropical regions, it is now restricted to a group peculiar to the inter



THE BOA CONSTRICTOR.

loftiest trees in chase of insects and of the eggs and young of birds. Others may be beheld by the traveller darting along the ground, crossing his path, plunging into the midst of the jungle, ere his eye can catch their tints, while a loud and angry hiss sufficiently intimates that it is perilous to follow.

In the Dutch colonies of the East Indies, André Cleyer is said to have purchased of the hunters of the country an enormous serpent, in the body of which he found a deer of middle age, absolutely entire. In another individual of the same species, also examined by this traveller, he found a wild goat, with its horns; and a third had evidently swallowed a porcupine with his quills. He also adds that a woman became the prey of a reptile of the same genus in the island of Amboyna, and that this kind is sometimes kept for the purpose of attacking buffaloes in the kingdom of Arracan, on the frontiers of Bengal. We need hardly be astonished at this, when Prince Maurice, of Nassau Siegen, one of the governors of Brazil in the seventeenth century, assures us that he himself was an eye-witness of stags and other bulky animals, and even of a Dutchwoman being devoured in this manner, when he commanded in the regions of South tropical parts of America, while the term Python is applied generically to the large snakes of Africa, India, and the islands of the Eastern Archipelago.

The Boa Constrictor, of which we give an engraving, is remarkable for the beauty of its markings. A broad chain, consisting alternately of large blackish and somewhat hexagonal marks, and of pale, oval dashes, extends along the back, forming a very elegant design. To this creature the epithets "king," "emperor," "divine," have been given, as indicating its superiority over all reptiles. Often tamed by the priests, for the purpose of overawing the multitude, it has been the subject of homage, which Southey has thus pourtrayed:—

> "Forth from the dark recesses of the eave
> The serpent came. The Hoamen at the sight
> Shouted; and they who held the priest, appall'd,
> Relax'd their hold. On came the mighty snake,
> And twined in many a wreath round Neolin,
> Darting aright, aleft, his sinuous neck
> With searching eye and lifted jaw, and tongue
> Quivering, and hiss as of a heavy shower

Upon the summer woods. The Britons stood
Astounded at the powerful reptile's bulk—
And that strange sight. His girth was as of man,
But easily could he have overtopp'd
Goliah's helmed head, or that huge king
Of Basan, hugest of the Anakim.
What, then, was human strength if once involved
Within those dreadful coils! The multitude
Fell prone and worshipp'd!"

The vast power and activity of these creatures were manifest in an adventure which Stedman had with one of them, in his expedition to Surinam. On leaving his boat, he had scarcely proceeded twenty yards through mud and water, when he discovered a huge snake rolled up under the fallen leaves and rubbish of the trees, and so well was the animal covered, that it was some time before he distinctly perceived the head of the monster, which was at the distance only of about sixteen feet. Rapidly vibrating its forked tongue, and its eyes glittering like sparks of fire, he raised and discharged his gun, but missing the head, the ball passed through the body. In a moment the animal struck



INCUBATION OF THE PYTHONESS.

round, lashing the ground with such force as to cut away all the underwood, as if by a scythe, while the mud and dirt flew in all directions. Following up the attack, Stedman, who at first retreated, now ventured on and found the snake at a short distance from the former station, quietly lying among fallen leaves, rotten boughs and moss, which concealed all but the head. He fired again; the animal was again wounded, and violently flounced about, throwing around a shower of mud and dirt. At the third fire it was shot through the head, and soon expired. The length of this snake, which the negroes declared to be young, was upwards of twenty-two feet; and its thickness that of a boy about twelve years old.

These huge snakes act like the tiger, taking their prey by stratagem. On the swampy margin of rivers, the borders of lakes, the tangled underwood that skirts the dark and marshy forest, they lurk, half floating in the water, half stretched on the land, or partly twined round some rugged trunk, to the bark of which their colours assimilate. Rapid as the arrow's flight, or the lightning's flash, they dart on their victim, instantaneously throw their bodies into folds or knots around that of their prey, and so great is their strength that the bones of a deer, or even an ox, snap beneath their efforts.

The following account of the incubation of the python was given by M. Valenciennes, in a paper read before the French Academy of Sciences, at Paris:—

"On the 5th of May, 1841, a pythoness, usually very quiet and tractable, exhibited great signs of uneasiness and much irritability, and on the following day laid fifteen eggs, commencing at six o'clock A.M., and ceasing at half-past nine. The shells were soft, and of a grey ashy colour, and were slightly inflated with air. The female, when left to herself in her box, gathered them all in a heap, and twined the lower part of her body around them, so that at last she had formed a sort of spiral cone, of which her head was the summit, and so well were the eggs covered that only one was visible. By violent contractions of the trunk, she repelled all attempts to touch them, and manifested such impatience, that at last any one who attempted to approach her, was in danger of being bitten. Although these animals are naturally very cold, the heat of the body in this instance was easily felt by the hand; and on the thermometer being placed on the top of the cone containing the eggs, the mercury rose to 73° F., although the temperature in the shade was only 52°, and that of the room only 50°. After fifty-six days of hatching, during which the serpent did not change her position for one instant, the shell began to break, and the heads of the young ones appeared; but the little animals remained within, never showing more than the two extremities of their bodies for one day. On the 3rd of July most of them extricated themselves altogether and crawled about on all sides, the last obtaining its freedom on the seventh. Of the fifteen eggs only eight were hatched, the others being crushed or broken. During the whole time the female manifested no desire whatever for food, but on the twentieth day the keeper placed a bucket of water within her reach, into which she instantly plunged her head, and drank about two tumblers full. She drank five times afterwards in the same way. This seems to prove that she was in some sort of febrile state. It was only on the 3rd of July, early in the morning, that she showed any inclination to eat, and then without quitting her position,

devoured about six pounds of beef. She immediately left the eggs, and never testified the least affection for her young. After issuing from the shell the latter drank a great deal of water, and plunged their bodies in it, but did not eat until they had thrown off their old skin and got a new covering, which took place between the tenth and fourteenth day."

THE RIDDLE, HISTORICALLY CONSIDERED.

Despise not the riddle; great men and good men, old men and young men, the youth, the maiden, and the child have been given to riddles. Despise not the riddle—it has sharpened the wits of many, it has aided and comforted the mathematician, it has enlivened the festive board. Despise not the riddle—it is a species of intellectual discipline, it is a source of social recreation. Of old it was the trusted handmaid of philosophy, as well as a shaft in the poet's quiver. It is the assertion of Athenæus that "skill in riddles is akin to philosophy." And all the world knows that the ancient oracles were little else than religious riddles.

The home of riddles is the East. There the riddle was born, and there it still lives. The Egyptian Sphinx is a riddle bequeathed to us from the earliest ages. The oracle of Apollo at Delphi was an ecclesiastical manufactory of riddles. Before men had so many theological, metaphysical, and social questions to solve as they have now, they consumed their supererogatory wits and energy in constructing and solving intellectual puzzles.

Specially is the riddle a companion of the social circle. So was it from the earliest times. The feast and the banquet have been its chosen places. The riddle cannot be accused of selfishness. No man tries to puzzle himself. It is a mental wrestling; there must be at least two to a riddle.

First in most things—first in history and poetry as well as in religion—the Bible is first in Riddles.

> "Out of the eater came forth meat,
> Out of the strong came forth sweetness."

In this riddle, which Samson "put forth," we find all the chief elements of the ancient riddle. It is an intellectual puzzle it is expressed in verse, it is propounded at a social gathering, its solution is required within a fixed time, a reward is offered for success, a penalty is attached to failure (Judges xiv. 12, *et seq.*).

The mental play proposed by Solomon was considered as both an exercise and a token of practical wisdom. Hence, among the objects for which the book of Proverbs was written we find this one:—

> "To understand a proverb and the interpretation;
> The words of the wise and their dark sayings."

Accordingly, a mental tournament took place between Solomon and the queen of Sheba, who travelled from a distant land to Jerusalem expressly "to prove" that monarch "with hard questions" (1 Kings x. 1, *et seq.*), while on his part, he "told her all her questions, there was not anything hid from the king which he told her not" (ver. 3). According to Josephus, a similar contest took place between Solomon and Hiram, king of Tyre. "The king of Tyre sent sophisms and enigmatical sayings to Solomon, and desired he would solve them. Now, so sagacious and understanding was Solomon, that none of these problems were too hard for him, but he discovered their hidden meaning and brought it to light" (*Antig.* viii. 5, 3. Solomon appears to have returned the favour with interest, for "Solomon sent problems to Hiram to be solved, and desired he would send others back for him to solve, and that he who could not solve the problems proposed, should pay money to him that solved them. And when Hiram had agreed to the proposals, but was not able to solve the problems, he was obliged to pay a great deal of money; one Abdemon, however, a man of Tyre, did solve the problems, and proposed others which Solomon could not solve; upon which he was obliged to pay a large sum of money to Hiram" (*Joseph. Apion*, i. 17).

It is, however, in the ancient Greek literature that we find the riddle in its fullest state of development. At first, interspersed in the writings of its early poets and philosophers, riddles in time became a distinct species of mental production, and being professionally treated of by the rhetoricians of its latter days, were by them described, classified, and criticised. The reward and the penalty proposed by Samson, were thirty under and upper garments. Among the Greeks the reward was the applause of the company, or chaplet of flowers; the punishment, a goblet of unmixed wine, or a "glass of salt and water. Of Greek riddles take as specimens these: "What is that which is everywhere and nowhere!" "What is that which is the same in heaven, on the earth, and in the sea?"

The Latins were too much given to action, to war, and to government, to excel in exercises of mental skill. In Virgil's *Bucolics*, however, we find the rival swains engaged in what in Lancashire would be called "setting each other craddies;" that is, proposing riddles. Thus Damœtas says to Menaleas—

> "Say where the round of heaven which all contains
> To three short ells on earth our sight restrains.
> Tell that, and rise Phœbus for thy pains."

And Menaleas says to Damœtas—

> "Nay, tell me first in what new region springs
> A flower that bears inscribed the name of kings;
> And thou shalt gain a present as divine
> As Phœbus' self, for Phillis shall be thine."

NATIONAL AIRS.

Nations are distinguished by their *music*, as well as by their language and customs. Not by that scientific music which all civilised countries enjoy in common, but by their home-made ballads, and those simple country songs which resist the innovation and the progress of art, and maintain their own characteristics to the last. These songs are easily recognised: no one would confound the "*Ranz de Vaches*" with a Polish chant, nor a Spanish song with an Irish melody.

When, or how, or by whom these airs originated, it would, in most cases, be impossible to say. Military songs were composed to celebrate some wondrous feat of arms, and were in the old time commonly written in Latin. Of this kind was the French popular air "*Vive Henri IV.*" Many of our most simple and beautiful airs have been transmitted from generation to generation. The manners and customs of a people are affected by the language which they speak; their genius, their enthusiasm, their climate, and the character of their soil, although diverse in their nature, exert a strong influence upon their national songs.

It is easy for an ear sensible to rhyme to recognise the peculiarities of the seguadilles, the boleros, and fandangos of *Spain*. These airs, so animated, and so different in character are sung and danced at the same time, accompanied by the guitar and the castanets. There is another Spanish air, the "*Tirana*," more solemn than the preceding, which although chanted is never used as a dance. The Spanish, in ancient times, were said to be the best singers in Europe, and were celebrated for their performance on the guitar, making the evening breeze melodious with songs to their ladies fair. The song beguiled the weariness of the traveller, and added fresh joy and gladness to his journeys end.

At *Venice*, the most charming "*barcarolles*" were composed and sung by the gondoliers, and were transmitted from father to son. These compositions were not scientific but natural. It was heart speaking to heart. As they guided their gondolas over the great canals, their melodies arose now in lighter, now in sadder strains, their voices harmonising with the deep swell of the oars as their barks proceeded from Palazzo to Palazzo.

It is the musical genius of the Neapolitan fishermen which renders the songs of *Naples* so famous. Their songs, and those of the Venetian gondoliers, have been justly celebrated throughout Italy, and are not only an honour to themselves, but the wonder and admiration of other nations.

Sometimes these national songs originate in accident, sometimes they are caused by some great event. The Swiss *Ranz des Vaches* perfectly accords with the mountainous country which has given it birth, it is peculiarly adapted for the hill country. If sung in a room or saloon, the music is by no means agreeable but executed upon the borders of the lakes, or among the rocks or on the Alps, it possesses a charm which is indescribable. The stranger is astonished as its peculiarly melancholy strain is echoed and re-echoed, in long plaintive strains from the rocks about.

So it is with our own land, with Ireland, with Poland, Sweden and the whole of northern Europe. National music is a feature

common to all. Those of Poland are especially peculiar. The *Dumbka*, so plaintive and so melancholy, has still no possible likeness to Swedish music. The *Polonaise*, which is a song and a dance at the same time, is still of a grave and solemn character, and has been made use of by nearly all the composers of Europe. The *Krakoviak*, a song and dance, is full of gaiety and vigour. The *Mazurek*, or Mazurka, is well known in France and England. The most celebrated *Dumbkas*, are "The Death of Gregory," "The Adieu," "The Neighbours," and "The Lilac."

The *Irish* melodies are worthy of remark; they are of two sorts, gay and plaintive, both equally beautiful and touching, enough in the one case to make the tears flow freely, and in the other to fill the heart with gladness and teach the feet to dance. The national air of England is well known; its solemn strains are familiar to every English ear; it is justly celebrated; its very name is grand and serious: "God save the Queen" is a prayer full of energy and fervour.

The invention of *Scottish* ballads is attributed to the time of James I., king of Scotland. This prince was both poet and musician. During his reign, and to the time of James IV., a great number of melodies were composed, they became familiar to the people, were heard in village homes, in city streets, and far off country parts, and to this day are cherished.

The national songs of *France* are very great in number and variety. There are the songs of the dance, the hunting-songs, the songs of martial deeds and knightly prowess, of love and home, and chivalric romance, songs of every description that light hearts chanted centuries ago. Perhaps the most ancient and the most original is the famous *Chanson de Roland*, known to all France, mentioned by nearly every historian. They have a great number of gay songs, which have gained a strong hold upon the affections of the people. These ballads or songs slightly differ in the various provinces, two of them are better known than the rest. *Vive Henry IV.*, and *Charmante Gabrielle* are attributed to Ducamroy, master of the chapel to Charles IX., to Henri III., and to Henri IV. He died in 1609. They have a song called *Viens, Aurore, je t'implore*, both the words and music of which are said to have originated with Henry IV. The lays of the provincial troubadours, and the romances of the minstrels were the fashion all over Europe in the fifteenth and sixteenth centuries. The Italians composed many songs under the title of *Cansonette alla Francese*. The French were at all times great patrons of such productions. These simple refrains came into great vogue, and even the ecclesiastics were obliged to introduce into their chants and masses some characteristics of this popular music.

Among the national airs of modern times, the Marseillaise is beyond dispute the most remarkable. It is expressive of the utmost energy and indignation, and at the same time the finest musical composition. This admirable song, intelligible without words, is the work of Rouget de l'Isle; and there is no other musical work attributed to him. Travellers may hear this solemn chant in the monasteries of Sicily and Spain.

ADAPTATION OF THE COLOURS OF ANIMALS TO THEIR HAUNTS.

The more we search into the habits and peculiarities of animals, the more are we led to admire the wisdom and goodness of the Creator. Throughout the animal creation, the adaptation of the colour of the creature to its mode of living, and place of concealment is highly remarkable, considered in reference to its preservation. If we look around, we shall discover that the colours of the smaller animals, and a multitude of insects, contribute materially to their safety. Caterpillars which feed on leaves are generally either green, or have a large proportion of that hue in the colours of their coats. So long as it remains still, how difficult it is to distinguish the grasshopper from the leaf or spray on which it rests! The butterflies that flit among the flowers are decked in varied hues like them. The little birds that haunt the hedge-row-side have feathers on their backs which harmonise with the colour of the leaves, and feathers on their breasts which borrow the white hue of heaven; these render them less visible to the hawk above, or to the prowling cat beneath. The wanderer in the fields almost treads upon the skylark before it rises, warbling merrily to Heaven's gate. The partridge can hardly be distinguished from the stubble amongst which it makes its nest; and it is considered an accomplishment for the sportsman to be able to find the hare sitting. In northern countries the winter dress of the hare and the ptarmigan is white like the snow.

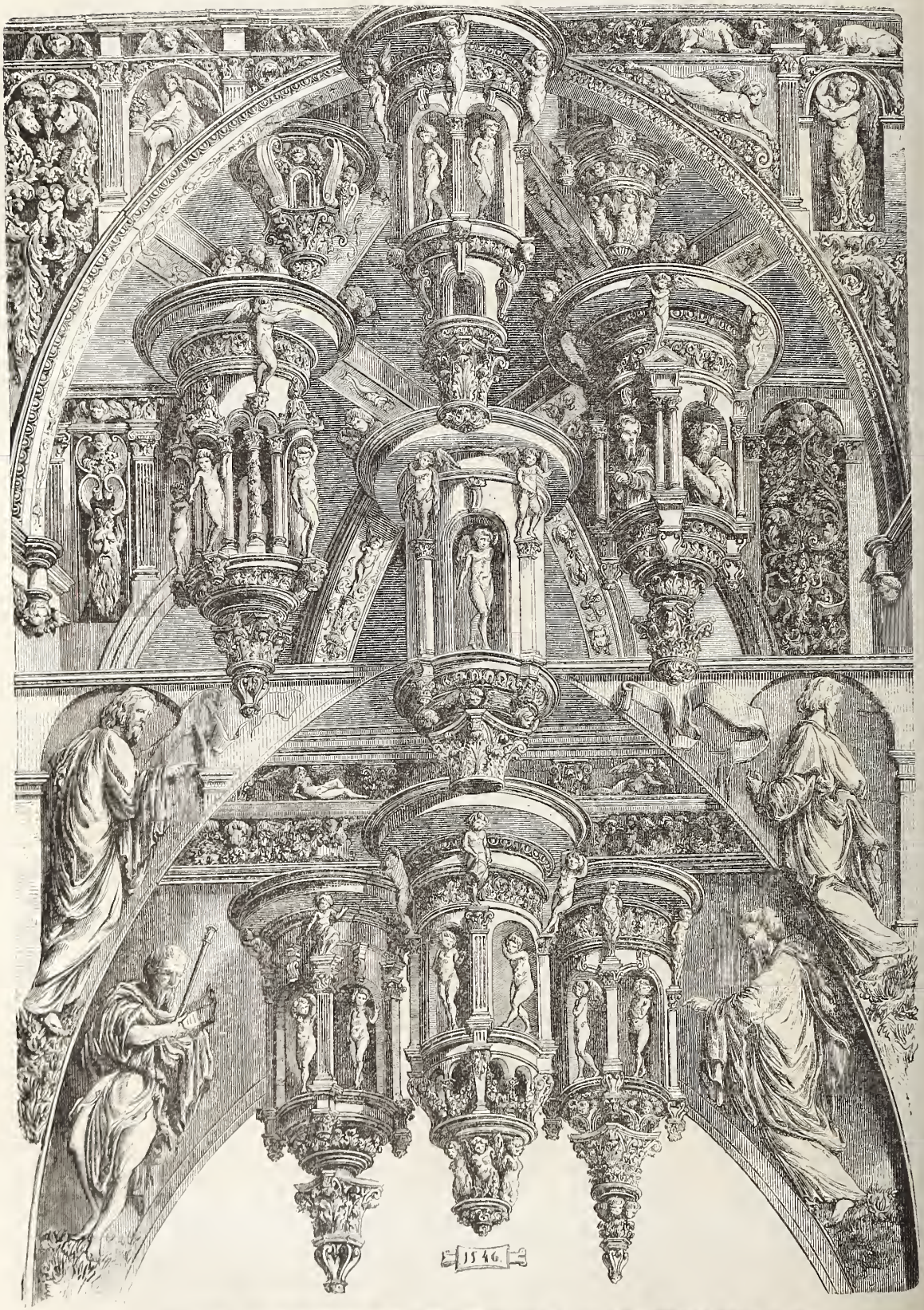
If we turn to the waters, we shall find that it is nearly the same with its inhabitants. Frogs vary their colour according to the nature of the mud or sand at the bottom of the ponds or streams they frequent; nay, the tree-frog (*Hyla viridis*) takes its name from the colour which is so difficult to see among the leaves, where it adheres by the cupping-glass-like process at the end of its toes. The fish, especially those which inhabit fresh-water streams, are distinguished by the same peculiarities. Their backs are comparatively dark, like the water above them, and it requires some practice to discover them as they glide along the bottom of the clear brook in thick dusky shoals. They come like shadows and so depart, under the gaze of the spectator. It is difficult to distinguish the pike—"the ravenous luce," as old Izaak Walton calls it—with its dark-green mottled back and sides, from the similarly-tinted leaves amid which that fresh-water shark lies on the watch, as motionless and still as the leaves themselves; and it is even difficult for any eye but that of the practised angler to discover what shadowy form it is that ripples the whimpled water as the bold old trout sails leisurely up the stream, with his back-fin just peeping above the surface, on the look out for a May-fly for his luxurious repast.

ENGLISH GROWN SILK.

Nearly all the raw silk used by the manufacturers of Great Britain is imported from China, France, and Italy; but in consequence of the difficulty sometimes experienced in obtaining it in sufficient quantities and of the necessary quality, attempts have been made at different times to breed silkworms and grow the raw materials at home. The most successful experimentalist in this direction was the late Mrs. Whithy, of Newland, in the county of Southampton. So enthusiastic was she in the pursuit of her project, that she imported mulberry-plants from the Philippine islands, and silkworms' eggs from Italy, in order to test the capabilities of the English climate. For more than fourteen years she went on breeding silkworms at Newland's, and winding off their produce, till not only was she convinced that the insects could be profitably reared in England, and that good silk might be produced in sufficient quantities to become commercially valuable, but she had the proud satisfaction of being recognised as the first to introduce a new description of employment into the market.

The manner in which she reared the worms and increased the stock of their food is as simple as it is interesting. She commenced her experiments—as far back as 1836—by ascertaining the best variety of mulberry-tree; and that which subsequent experience led her to prefer above all others was the *Morus multicaulis* of the Philippine islands. The luxuriant crop of leaves formed by this variety of tree, and its easy propagation in open grounds, rendered it peculiarly fitted for the purposes; and, with careful training and manuring, the size which the leaf attained in Hampshire almost equalled that of its native country. She found, too, that the difficulty hitherto experienced in rearing the silkworm was not near so great as she had anticipated. Equable warmth throughout the period of the insect's existence, cleanliness, classification, and ventilation, with a due regard to the suitability of the food to the age of the insect, she found to be the essential elements of successful management. The silk produced was pronounced by the most eminent manufacturers to be equal in every respect to the best imported from Italy; and Mrs. Whithy, by her own efforts, proved that English-grown silk might be made a profitable undertaking. Unfortunately for the interests of trade, however, this lady died before the manufacturers became fully aware of her valuable labours. Several articles composed of silk grown at Newlands, were shown in the Crystal Palace by Messrs. Houldsworth, of Manchester; and since the Exhibition many attempts have been, and are now being, made, to carry out the original idea of this lady. We lately saw some ladies' dresses and shawls made entirely from English silk.

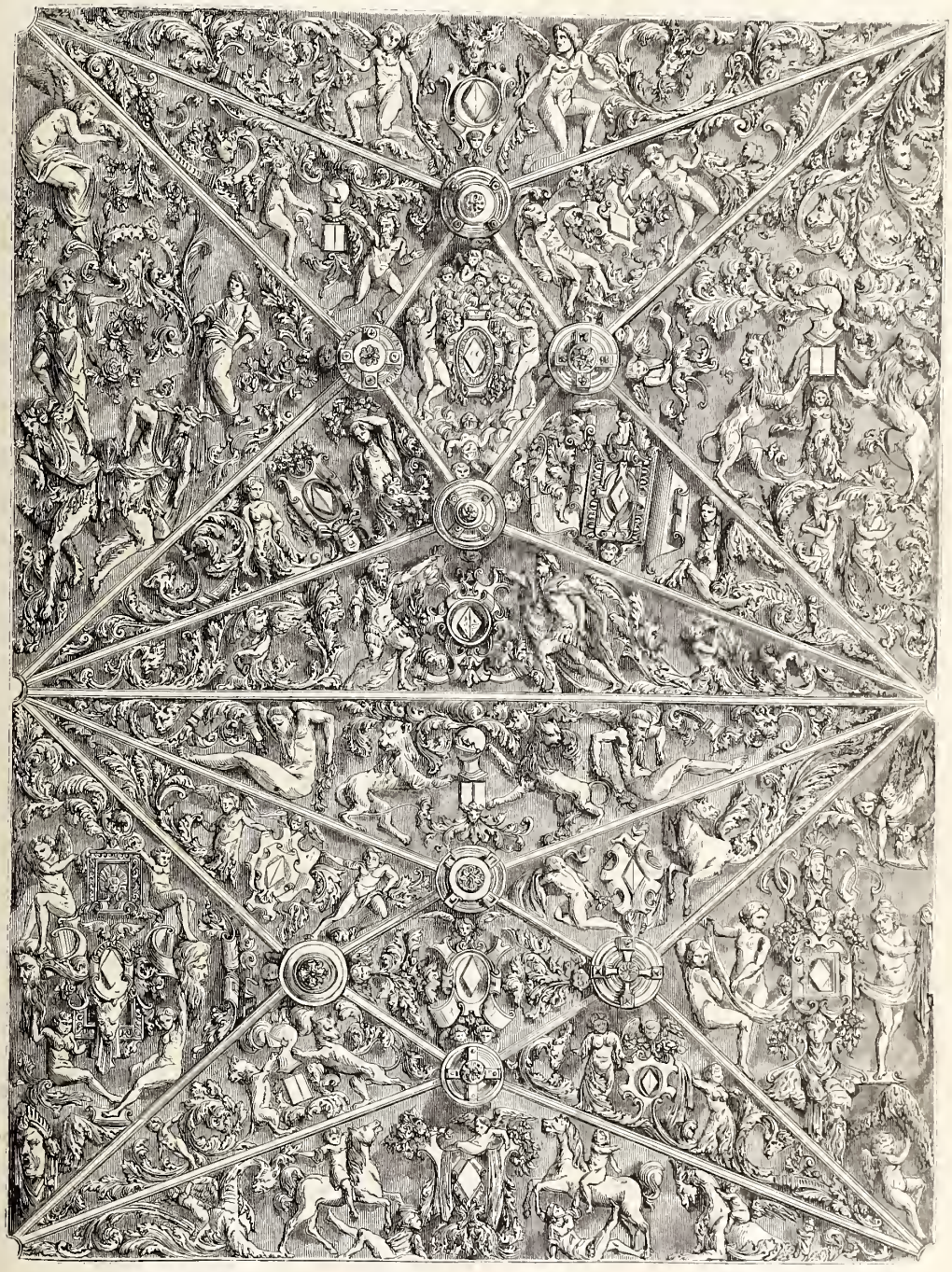
THE CHURCH OF TILLIÉRES-SUR-AVRE.



PENDANTS AND ORNAMENTS OF THE CEILING GROUPED TOGETHER. DRAWN BY LANCELOT.

Tillieres is a small town upon the road from Paris to Brest, lying in a valley watered by the Avre. At present it is composed nearly of one long street, presenting no sign of life except on the arrival of the diligence or the carriage of a traveller. Its moder edifices are one or two brass foundries, and sheet-iron manufa tories; but its ancient remains are well worthy the attention

all lovers of art and historical reminiscence. These are the ruins of a castle built by Henry I., in 1040, and others more extensive, of a chateau of the eighteenth century, belonging to the Leveneur family, and above all the sculptures in the choir of the church. The porch, which has often been restored, or rather reconstructed, still preserves some characteristics of the style of the twelfth century. The choir, which dates from 1546, is



CEILING OF THE CHOIR. DRAWN BY LANCELOT.

admirable. It is divided into three unequal compartments, and that in which the altar is placed is again subdivided into three parts. The sides are pierced by arched windows with elegant mouldings, and decorated with niches on which the ribs rest which support the ceiling. The above engraving represents the whole extent of the latter, and the other, some of the detached parts.

Each of these compartments is enclosed in a large semicircular arch, from the sides of which, two light and highly ornamented nerves verge towards the centre, and is divided into nine triangular panels, with the exception of that in the middle, which has a lozenge form. At the points in which the nerves meet, are reliefs of great richness and variety. Each panel is filled with figures of men and of animals interspersed with graceful foliage, and in the middle of each is a shield bearing the armorial ensigns of the Leveneur family and others connected with it; but the greater number of these are now mutilated or effaced. Our second engraving represents only two of these compartments. One of the panels, that in which the two satyrs are seen with a girdle fastened round them, was restored in the eighteenth century. The whole of the upper part is entirely new, and the difference between ancient and modern modes of decoration is distinctly marked in the character of the ornaments.

In place of foliage springing from the heads of monsters, or luxuriant plumes waving gracefully, or acanthuses with jagged leaves, they have substituted natural flowers in bas-relief scattered here and there, modillions with opposing curves and unconnected outlines.

The chief characteristics of these bas-reliefs are great fineness of execution, slightness of projection, and that softness of contour which distinguishes all the works of Jean Goujon. The designs display great richness, great profusion, and much gracefulness, but no settled plan. Not one of them contains any allusion to fable or history. One group towards the right, and at the lower part of the panel, containing a figure wearing the Phrygian cap or head-dress, and holding in her hand a piece of flowing drapery, appears to have some reference to the Judgment of Paris.

The drawing of the figures is in general meagre, but elegant. Many of the postures are highly wrought and artificial, though vigorous, and thus betray the influence of Italian art; above all, that of the school of Michael Angelo. Upon some of the nerves are cherubs amongst flowers and birds; but our space does not permit us to give all the details in our engraving. The nerves project gently at their base, and are brought very close to one another, so as to form acute angles. The artist has with wonderful patience worked designs with the chisel upon every block of the stone. In the recesses, into which the eye can hardly reach, there are a number of beautiful figures of angels, and some very fine groups of fruit and flowers. Four of these voussures are reproduced in our second engraving, in which may be seen some of the most remarkable pendants, as well as various other parts, which could not be introduced into the bird's eye view of the ceiling. They are brought closer together than they are in reality, as no attention is paid in the engraving to perspective, to enable the reader to understand them better and perceive the relief and details.

The execution of all the sculptures displays great knowledge. Viewed from below they seem very delicate, finely chiselled, and well proportioned. But if we get close to them by means of a ladder, they have altogether a different aspect. The legs are slender, the model exaggerated, the necks too long, the heads too flat, and the features too short and snubby. On descending, on the contrary, all the proportions appear true and just. In the niches at each side of the windows are large figures of the prophets and evangelists, well sculptured, and with graceful drapery. The sacristy to the right of the choir is decorated with the same taste and profusion. In one of the corners is a charming piscina, sculptured with great delicacy of finish.

These works of art are supposed to have been executed by the order and at the expense of Cardinal Leveneur, who erected the portico of the cathedral of Evreux, described on a former occasion.

STEAM NAVIGATION.

At a recent sitting of the French Academy of Sciences, M. Arago laid before the members a letter from M. Coulmann, of Hanover, respecting the application of steam power to navigation as early as 1695. The letter states, that the celebrated French engineer *Papin*, being at Cassel in the year 1707, resolved upon putting his theory of steam navigation into practice, and to make an experimental steamboat, that it was actually launched, but that, owing to the spite or awkwardness of the boatmen employed, it went to pieces, to the great disappointment of many who had been much interested in the trial. M. Arago thought it fair to add, that it appeared evident to him, that the idea of using steam as a propelling power for vessels had occurred to Prince Rupert, some years previous to the unsuccessful experiment made by M. Papin.

The origin of steam navigation is, however, supposed to date much earlier than the days of Prince Rupert. There is an old volume published in 1510, which seems to contain the first rude idea of the system, and, in 1543, Blasco de Garay, a Spanish captain, made and tried a steam-vessel in the port of Barcelona, but laid it aside owing to the bigotry of an imperial officer. Solomon de Caus, of Frankfort, is said to have been engaged in its first experiments. This was in 1615, long before the days of Prince Rupert.

In 1736 a patent was granted to Jonathan Hulls, for a machine for carrying vessels against wind and tide, or in a calm. In 1778 Thomas Paine, the celebrated political reformer, proposed, in America, the application of steam to naval purposes. In 1781 the Marquis de Jouffroy constructed one on the Soane; and in 1784 two Americans, Fitch and Rumsey exhibited two boats which were slowly propelled in the water by steam power—an humble beginning of a great system. It was in 1788 that Symington, Miller, and Taylor, applied steam power to work a paddle-wheel; while in the following year they were the first to attain a steamboat speed of seven miles an hour, on the Forth and Clyde canal. It was in 1802 that Symington first drew a heavy load along a canal by steam power. It was in 1807 that a steamboat first plied for traffic from Albany to New York on the Hudson river; this boat, the "Clermont," was constructed by *Fulton*, of about 160 tons burden. It was in 1808 that a steamer first ventured on a coasting voyage, which Stevens made from New York to the Delaware. It was in 1812 that the first passenger steamer plied in Britain; this was Henry Bell's little boat, the "Comet," of only 25 tons burden, and 3-horse power; it carried passengers up and down the Clyde. It was in 1813 that a steamer first made its appearance on the Thames, as a passenger-boat between London and Gravesend; and it was in the same year that a steamer first braved the rough seas of our coasts in a voyage from Glasgow to London. By the year 1818, there were forty-six steamers plying in the twelve rivers—Clyde, Forth, Tay, Trent, Tyne, Humber, Mersey, Yare, Avon, Severn, Orwell, and Thames; and about the same time the steamers in the United States exceeded this number. It was in 1818, too, that the first regular trading over-sea steam navigation commenced, by placing the "Rob Roy" on the Greenock and Belfast route; although the English Channel, the Irish Sea, and the German Ocean, had all been crossed by steam before this date. It was David Napier, of Glasgow, who took the lead in steam navigation between 1818 and 1830, and his cousin Robert who has since taken up this honourable position. It was in 1838 that the problem of transatlantic steaming was effectually solved by the safe voyages of the "Great Western" and the "Sirius;" and in the fourteen years which have subsequently elapsed, the progress of steam navigation has been truly astonishing—little less so than that of its sister-system, the railways.

In 1840 it appears from official documents, there were 967 registered steamers in England, 244 in Scotland, and 79 in Ireland. In 1848-9 there were 1,100, being a collective force of about 92,800-horse power. At the beginning of the present year there were 1,184 steamers plying upon the waters of Great Britain and her dependencies. Not only in England had this increase been seen, in France, the returns in December 1842, showed a total of but 108 commercial steamboats, but the amount has nearly doubled since that time. The same is the case in America. According to the "Altans Register," there were plying in the United States in June, 1851, the following steam ships and boats:—Upon the ocean and on the Atlantic sea-board, 625 steam-vessels. At the same time upon the rivers and lakes, 765 boats. Total, 1,390; conjoint tonnage, 418,113.

"The empire of the sea," says a recent writer, "no longer resides in wooden walls, but in the power of steam!" There is great truth in the saying; but it is not only when the aggressions of one power excite a partial or general war—it is not only when hostilities have begun, and the world wakes up at the rude alarm of belligerent forces—that the true value of steam navigation is seen. As it floats afar to other lands, and carrying with it the productions of British skill and British industry—as it returns with the works of foreign hands, the results of foreign thoughts, and the productions of a foreign soil—it brings the east and west, and north and south together. It binds nation to nation, man to man, and secures that which it is the aim of the world's philanthropists to win, and the realisation of which will be the world's glory—it makes men learn the lesson of co-operation and of mutual help, and show the folly of war—that worst of human calamities—and the wisdom as well as happiness of all which tends to bring about the reign of peace on earth.

THE AZURE COLOUR OF THE SKY.

To judge from the first impressions of our senses, we might suppose that the heaven above us was an immense vault of blue studded with brilliants; such an opinion, however, will only be retained by the most ignorant of men, though many with some title to understanding have very absurd notions of the sky. Its azure colour is due to the want of perfect transparency in the atmosphere. Were it possible to ascend very high above the surface of the earth, the air would be found much more rarefied, till, if we were to ascend still higher, it would become incapable of assisting in respiration, and at length would no longer exist, when we should have reached the region of pure ether.

The higher the mountains are which we ascend, the lighter does the atmosphere become, and the azure colour of the heavens fainter. And if it were possible to ascend to the regions of pure ether, the blue colour would entirely disappear, the sky would appear black as night; for so do those objects appear which do not reflect the rays of light. Consequently, if the air which surrounds us was as transparent as ether, the sky could not appear blue. The air is filled with innumerable minute particles, which when illuminated by the sun receive a motion, in consequence of which new rays are produced; and those particles, of themselves opaque, become visible to us when they are thus illumined. Their colour is blue; hence a forest, which appears green when we are nigh to it, seems to be more and more blue as we recede from it. However pale and subtile are the blue rays of air, so many of them strike upon our eye at the instant, that they produce all the effects of a dark blue.

What has now been advanced may induce us to consider the heavens in a different point of view than we have hitherto done. From it we may conclude that there is not a phenomenon in nature, not even the colour of the sky, in which we do not discover order, utility, and adaptation to some certain end. If green is the most agreeable colour that could be chosen to beautify the earth, the azure of the heavens is no less beautiful and pleasing. How dreadful is the aspect of the heavens when storms rave and tempests lour! But what a beauty and simplicity is seen when it is in a state of serenity and repose! The charms it presents increase as we contemplate it, and we are never weary with the pleasing view; the rejoiced soul raises itself to the Being who has thus adorned the heavens, and swells with gratitude in beholding the evidences of his power displayed in its beauty.

ART-INDUSTRY.

However difficult it may be to draw a clear and determined line between mere practical and artistic manufactures, from the almost innumerable varieties of transition, yet it appears very necessary to regard the principles from a purely aesthetic point of view, at the same time remembering that very great uncertainty even prevails among industrial artists as regards the ideal definition of Art-Industry, and the boundaries which separate it on one side from mere manufactures, and on the other from the arts.

What are we to understand by Art-Industry? On what grounds, and from what properties does an article take the name of an "Art-Industrial product?" The produce of Art-Industry, it is clear does neither belong entirely to art nor to manufactures, but partakes of the nature of both. This participation is therefore to be defined.

Such product may belong to the manufactures partly through its *real value*—as in gold or silver, by its metallic worth—partly through its *practical utility*. An Art-Industrial object evinces at once its purpose, or becomes a pure work of art as soon as it no longer supplies any want of the civilised world. No less important is its intrinsic worth; for we must not forget that the object when produced in a comparatively valueless material, but at the same time designed in perfect accordance with art, is at once raised from the sphere of industry to that of pure art. For seen from this point of view, no one will question the fact, that under certain circumstances a design executed even in common clay may be of more value than an object manufactured of massive gold. The real worth therefore on one side, and the practical utility on the other, constitute a claim to be classed under the head of Art-Industry. Art, however, belongs to it merely from the artistic form with which it clothes to a certain extent the industrial idea.

All this appears perfectly clear and lucid, as far as we have to do with the determination of the claim of each sphere separately. The great difficulty lies in this—that they cannot in practice be separated, but in spite of their mutual difference, in spite of their opposite positions, and in spite of a natural disinclination to unite, they produce by their conjoint energy, objects, which perfectly combine the peculiarities of each.

It is customary to stigmatise the emancipation of life from the prosaic wants of nature, as "luxury," and to add to this many reproaches, the least of which is, that "luxury" is superfluous and useless. Certainly, if put to the test by the mere wants and indispensable necessaries of life, "luxury" may be called superfluous, but in that case, poetry, the arts, even the united sciences, and everything which raises man above the lowest condition of natural instinct is "luxury."

As far as we are concerned, we freely admit that we regard "luxury"—that is, a poetic refinement of the material wants, the subjection of the earthly to the influence of the arts; in fact, the idealisation of the senses—as one of the greatest benefits of civilisation.

The refinement of civilisation has had a great and noble object in view,—namely, the regeneration of art in its former noble and simple truth. If we glance at costume, we shall see that through all its caprices and apparent eccentricities a slender unbroken thread was woven—a striving for simplicity and grace.

To return again to Art-Industry. The difficulty of determining its boundaries, lies, as we have said, in the difference between the two spheres, to which it equally belongs, and in the absolute necessity of the mutual contradictions being perfectly harmonised. As the Art-Industrial object must on one hand be perfectly capable of a practical utility, and on the other, artistic in shape, we may conclude that the object of Art-Industry is to prepare the way for that idealisation of the senses which we have before mentioned.

The connexion in which the practical object of an Art-Industrial product stands to its artistic form; the harmonic influence which certain styles, or certain artistic ideas and principles are calculated to exercise on the practical utility of the product; the facility with which the artistic form embraces the material, the equality which must be maintained between the two influences; all these are questions which must be taken into consideration to decide the claims of any object to be called Art-Industrial, although they are by no means to be regarded as fixed principles.

The spheres of Art-Industry may, however, be divided into two classes. One, the *symbolical*, which includes all those designs which make use of a simple artistic idea for the production of certain products; the other, the *ornamental*—or arabesque in the most extended acceptation. In the latter we recognise the widest field of Art-Industry. We shall now proceed to give a short explanation of the accompanying designs.

Fig. 1. *A bell-handle*, designed by Robert Kretschmar, of Leipzig. The two figures are of bronze or silver. The small bells which are to be executed in the same metal, serve to hide the crank to which the cord is fastened; this cord may either be a metallic chain or a silken cord.

Figs. 2, 3. *A lamp* with four wicks, with the rosette and hook belonging to it, designed by Wiedemann, of Dresden. This lamp might be executed either in cast-iron or bronze. Below the lamp and forming the bottom is a piece of coloured porcelain or glass, contained in a network of bronze. The conjunction of earths with metals has been much practised by French workmen during the last few years, and it is of no little importance that the artist should turn his attention to the effect produced by such combinations.

Figs. 4, 5. Stopper for a bottle, and handle for a cane. These last require no explanation, excepting that they are designed by Lipsius, of Dresden.



Fig. 1.



Fig. 2.



Fig. 4.



Fig. 3.

Fig. 5.

JAMES TAYLOR, OF BIRMINGHAM.



JAMES TAYLOR, JUN., ESQ. DRAWN BY H. ANELAY. ENGRAVED BY HENRY LINTON.

One of the most striking characteristics of the industrial spirit of the age is its tendency to bring talent in humble life under the notice of the public, and the great stimulus which it has consequently given to self-education. The collection of large masses of men in the busy centres of manufacture has many undeniable disadvantages; but it unquestionably sharpens the intellect, calls forth powers of mind, and creates a solidity of judgment which are rarely found amongst those engaged in agricultural pursuits. It has been well said, that from the shock of ideas springs truth. Constant intercourse with great numbers of our fellows, contact with great numbers of strangers, and personal interest in the success of enterprises which have the wide world as a field of action lead the artisans in the great factories of Birmingham, Manchester, and other large towns, to look beyond the gratifica-

tion of the selfish wants of the hour, and become absorbed in the contemplation of the vast extent of inquiry and knowledge which lies even within their own horizon. It is in these busy hives of industry that some of the great social and economic problems of the day must be solved; and, let others say what they will, it is the working men who must solve them. Reading, which is sought as a relief after the fatiguing duties of the day, leads to discussion, and this, when temperately and soberly conducted teaches men to measure themselves against their fellows, and shows them exactly what is their mental calibre. Consciousness of the capability of rising in the social scale awakens to the desire to do so; and perseverance in self-improvement invariably brings about the wished-for result.

It is our intention from time to time to give portraits of some of these self-made men, and a sketch containing the leading incidents in their lives. We commence with that of James Taylor, of Birmingham, who is at present well known as one of the chief promoters of the Freehold Land movement. He was born in Birmingham in 1814, and is now consequently thirty-eight years of age. His father was a tradesman of that town, and gave his children as good an education as his scanty means would allow. James was set to work at an early age, and was in due time bound an apprentice to one of the fancy trades. While thus situated he was distinguished by his industry and frugality. At the age of twenty-one he married, and soon after, the trade fell off greatly and he became addicted to drinking, which for five years prostrated his energies, and kept himself and his family in misery. At the end of that period, however, he signed the total abstinence pledge, and thus commenced a new era in his life. His upward progress from this time was rapid. He became a great temperance advocate, and appeared at innumerable meetings held in aid of that cause. He at length had his attention drawn to the Freehold Land question, as a means of placing the franchise in the hands of the labouring classes, and thus giving them their due influence in the government of the country, and has filled various offices in connexion with benefit, and similar societies of his native town. He was the originator of the idea upon which the Freehold Land Societies are founded, and persevered in carrying out his plan in spite of the obloquy heaped upon him from all sides, and we need hardly allude to the success which has crowned his labours. The Wolverhampton Freehold Land Society in 1848 presented him with a gold watch, as a testimony of the high sense they entertained of his services in the cause. On this occasion a meeting was held in the theatre, at which four hundred shares were purchased.

Our readers may ask what is the Freehold Land Movement. We will tell them as briefly as we can. It is a new name for the development of an old idea. Our constitution, as we are all aware, is a very old one, and amongst its oldest principles is one which Mr. Taylor has taken and worked with wonderful success. According to our old English constitution every forty-shilling freeholder has the right to the franchise. Mr. Taylor, then, by means of the associative principle, offers that right on the lowest terms to every man who likes to secure it for himself. And he does this in the following manner:—A society is formed of members subscribing a shilling a week; if several hundred members are enrolled, in time these weekly shillings amount to a very respectable sum, and when this is the case—or before if, as it generally does happen, the society can borrow it—an estate is bought, which is allotted amongst the members. The advantage of this mode of procedure is that the estate is bought wholesale, and divided at wholesale price; and the thing being thus done the law expenses are greatly curtailed: and a small plot of ground, which is generally a very costly article, is thus supplied to the purchaser at generally about half the price which he could otherwise have obtained it for. But our readers may tell us, this is the old scheme of Feargus O'Connor over again. We reply it is nothing of the sort. His land society was quite a different thing. He sought to make agricultural labourers and small proprietors of men who knew nothing about land, who were utterly unfit for their work, who were as qualified for rural employment as they were for service on board a man-of-war. The societies with which Mr. Taylor is identified aim at nothing of the kind. They do not take the workman from his regular employment. They simply offer him a means of saving a little money, of becoming the proprietor of his own house, of having a stake in the country, and a voice in the management of its affairs. When we remember how deep-seated is the attachment to the possession of land, we cannot wonder these societies have prospered as they have. Nor, especially can we wonder at this, when we see how few are the investments for working men, and how unsatisfactory is the condition in which most of the savings-banks are at present. Our readers must not, then, be surprised to learn that almost every town in England has its freehold land society, that their numbers vary from 150 to nearly 10,000 members, as in the case of the National Society, and that they are patronised by parties of all shades of political and religious opinion. There is a Church of England Freehold Land Society, for the special benefit of members of the Established Church; and, if the dissenters have not a society with a distinctive name, it is not that they do not take equal interest in the movement, but from the simple fact that they are connected with societies already existing. Some time back the *Times* wished to see the inside of a Freehold Land Society. We have now suffered our readers to do so. The thing is very simple and clear. They are based upon the associative principle—upon that truth so well known and acted on at the present day, that numbers can do what individuals cannot.

James Taylor is now living with his family in Birmingham, in a pretty little residence which he has named "Temperance Cottage." He has been the author of various pieces in prose and verse, which have found their way into the provincial newspapers. Though good offers have been held out to him, in case he chose to settle in London, his attachment to his native town is so great that he would never consent to leave it. Our engraving is considered a striking likeness of James Taylor. We have transferred it to our pages by an arrangement with the proprietor of *The Freeholder*, a Saturday newspaper, the organ of the Freehold Land Movement, to the subscribers of which journal it has already been presented.

METEORIC SHOWERS.

One of the most splendid displays of this phenomenon which we have seen on record took place in the month of November, 1846. The chief scene of the exhibition was included within the limits of the longitude of 61 deg. in the Atlantic ocean, and that of 100 deg. in Central Mexico, and from the North American lakes to the West Indies. Over this wide area an appearance presented itself far surpassing in grandeur the most imposing artificial fireworks. An incessant display of dazzlingly brilliant luminosities was kept up in the heavens for several hours. Some of them were of considerable magnitude and peculiar form. One of large size remained for some time almost stationary in the zenith, over the falls of Niagara, emitting streams of light. The wild dash of the waters, as contrasted with the fiery uproar above them, formed a scene of unequalled sublimity. In many districts the mass of the population were terror-struck, and the more enlightened were awed at contemplating so vivid a picture of the Apocalyptic image—that of "the stars of heaven falling to the earth, even as a fig-tree casting her untimely figs when she is shaken of a mighty wind." A planter of South Carolina thus describes the effect of the scene on some ignorant negroes:—"I was suddenly awakened by the most distressing cries that ever fell on my ears. Shrieks of horror and cries for mercy I could hear from most of the negroes of three plantations, amounting in all to about six or eight hundred. While earnestly listening for the cause, I heard a faint voice near the door calling my name. I arose, and taking my sword, stood at the door. At this moment I heard the same voice still beseeching me to rise, and saying, 'Oh, sir, the world is on fire!' I then opened the door, and it is difficult to say which excited me most, the awfulness of the scenes, or the distressed cries of the negroes. Upwards of one hundred lay prostrate on the ground—some speechless, and some with the bitterest cries, but with their hands raised, and imploring God to save the world and them. The scene was truly awful, for never did rain fall much thicker

than the meteors fell towards the earth; east, west, north, and south, it was the same."

This extraordinary spectacle commenced a little before midnight, and reached its height between four and six o'clock in the morning. The night was remarkably fine. Not a cloud obscured the firmament. Upon attentive observation, the materials of the shower were found to exhibit three distinct varieties:—

1. Phosphoric lines formed one class, apparently described by a point; these were the most abundant. They passed along the sky with immense velocity, as numerous as the flakes of a sharp snow-storm.

2. Large fire-balls formed another constituent of the scene. These darted forth at intervals along the arch of the sky, describing an arc of 30° or 40° in a few seconds. Luminous trains marked their path, which remained in view for a number of minutes, and in some cases for half an hour or more. The trains were commonly white, but the various prismatic colours occasionally appeared, vividly, and beautifully displayed. Some of these fire-balls, or shooting stars, were of enormous size. Dr. Smith, of North Carolina, observed one which appeared larger than the full moon at the horizon. "I was startled," he remarks, "by the splendid light in which the surrounding scene was exhibited, rendering even small objects quite visible." The same, or a similar luminous body, seen at Newhaven, passed off in a north-westerly direction, and exploded near the star Capella.

3. Another class consisted of luminosities of irregular form, which remained nearly stationary for a considerable time, like the one that gleamed aloft over the Niagara Falls. The remarkable circumstance was justified by every witness, that all the luminous bodies, without a single exception, moved in lines, which converged in one and the same point of the heavens, a little to the north-east of the zenith.

GOLD IN CALIFORNIA AND AUSTRALIA.

The piece of gold which our engraving represents weighs upwards of forty-two ounces. Its component parts have been calculated as follows, the gold being almost pure:—

Gold	823·5
Silver	173·5
Copper	3·0
	1,000·0

This remarkable specimen of Californian gold was found on the banks of the Juba by an Irish sailor, who had deserted his vessel for the gold-mines. Pieces of gold of this size and purity are very scarce, but several have even been met with which far exceed this both in value and dimensions. The discovery of the Californian gold-mines produced but little effect in the masses of population in England, and though it was prophesied that such immense discoveries of gold must produce great depression in the value of that metal, yet up to the present time, though the importation is as large as ever, scarcely any such effect has been experienced in this country or America. In the United States the gold fever was all powerful; but in England it was but little felt; in America men of all ranks, and every profession or trade, threw up their occupations and left for the Placers of the Sacramento on the Juba. Immense fortunes have been made in many instances, but thousands who went elated with hope have returned disappointed, with injured constitutions and ruined prospects. This may be ascribed to several causes. The gold of California attracted those legions of outlawed Americans, who either through impatience of the yoke of society, or through their own crimes, have been compelled to push on as the lawless and daring pioneers of the great Anglo-American race. The constant scenes of murder and consequent lynch law, the robberies and Indian massacres which were reported in the Californian newspapers, clearly showed the state of society in that country. Another cause was the climate, which is one of the most unpleasant and unhealthy in the American continent. At San Francisco in one day the four seasons may be experienced; damp fogs in the morning, a stifling heat at midday, a violent gale in the afternoon, and sharp frost at night. Very few constitutions are able to stand such changes even when guarded by every domestic and social comfort, but how much more trying must they be to any one who is exposed to their influence at the Placers; he must stand up to his knees in the water while washing the sand and earth from the golden grains, sleep on the ground, and expose himself without hesitation to the inclemency and change of the elements. In California the usual gains of a miner were from £2 5s. to £2 10s. per diem, out of which he would have to expend from six to ten shillings for food. Some cases have been known where miners have been obliged to part with every grain of gold to maintain life. These facts, with the great distance and uncertain voyage, prevented any great emigration from Great Britain, though, without doubt, some adventurous spirits were impelled by the fever to try their fortunes on the Sacramento.

As regards the cry of approaching depression in the value of gold, we may refer to a statement of the amount of gold procured annually before the discovery of the Californian mines, stating, at the same time, that for seven or eight years the Ural mines have afforded upwards of twenty millions, without having produced any visible alteration:—

Europe (excepting Russia)	£200,000
Siberia	4,000,000
Asia (excepting Siberia)	400,000
North America	200,000
Africa	400,000
South America	1,200,000
	£6,400,000

To all appearance, were this sum doubled, or even trebled, it would produce no other change than that of the substitution of gold for silver money.

Wonderful as were the accounts from California, they have been completely thrown into the background by the late reports from Australia. The most wonderful and almost incredible accounts were put in circulation, but however wild and unfounded many may have been, there are yet others which are perfectly true as regards facts. For many years reports had been current that the Australian Alps and the Snowy Mountains were full of gold; but it was not till after the Californian discoveries that any was found in Australia. Two shepherds were the first persons who found any gold, and for a long time they successfully concealed the source from which they procured it; but being watched, their secret was discovered, and the news spread like wild-fire over the colony. Scales appeared to fall from people's eyes. They must have before been blind, for gold was found everywhere. In one place a large stone, which, from the fact that bush-rangers had near it planned their robberies, called Bush Rangers' Rock, was found to be full of gold, to the amount of near £4,000. Gold quartz was even picked up from among the stones with which roads had been repaired, and a bridge was even pulled down, as it was found to have been constructed of auriferous stone. Many of the causes which in California prevented emigration did not exist here. The system of licensing the miners has been of great service in preserving order, and, as a specimen of the good feeling existing at the "diggins," we may mention that the last accounts state that most of the farm labourers have returned to assist their former masters in getting in the crops. The gold at Sydney is found embedded in quartz, and is, therefore, much harder to get than in Victoria, at the Mount Alexander, and Ballarat diggings, where the "nuggets" are found embedded in a blue clay at a depth varying from three to twenty feet below the surface. The climate of Victoria is described as being splendid, and provisions are not much scarcer than they were previously. Melbourne is, of course, almost deserted, and several cases have been mentioned where families have been entirely left without servants. A groom informed his master, in one instance, that he would stop with him, as he had been in the family for five years, for a guinea a day, if it would be any convenience to him! Another family were left with only a boy of sixteen to attend them, and his stipulations were —two pounds a week, and wine to his dinner!

All accounts tend to confirm the fact that gold is almost inexhaustible, and that the *fields* extend for hundreds of miles into the Snowy Mountains. The probable annual export of gold, calculating from the present arrivals at Melbourne, will be upwards of £3,000,000, and on December 5th the following quantities of gold were received by the escorts :—

	oz.	dwts.
Melbourne . . .	19	10
Goulburn . . .	41	0
Braidwood . . .	301	10
oz.	362	0

Calculating with the price of gold at £3, the amount discovered in Australia during the three months ending December, is £730,242. The following is an extract from a letter written by Councillor Guthridge, from the diggings. The writer is known in the colony as a man whose "word is his bond :"—

"Believing many of the reports put in circulation to be grossly exaggerated, I was the more careful from personal observation and minute inquiries, to arrive as near the truth as possible, the result of which is, that although individual cases of success may have been swelled in the relation, yet in the aggregate, the most extravagant statements which I have heard, have rather fallen short of the facts than exaggerated them. That gold is being dug up there in immense quantities is an established fact. That a very considerable number of the diggers are realising fortunes is beyond doubt; that multitudes are doing what is termed "very well" is quite certain; that almost everybody who works is getting something is plain, and that gold exists in abundance, not only in the neighbourhood of the present diggings, but through the whole of the ranges along the banks of the Loddon, Colliban and Campaspie rivers, which is all but inexhaustible. I verily believe that no one need be afraid of being *too late*, for generations yet unborn will doubtless be digging gold from those ranges, if indeed it remain of sufficient value to be dug. I will mention a few cases of success which came under my own observation. A person named Hill, who had been at work only seven days, placed in my hands his leather bag, the weight of which I judged to be 27½ lb.; this was his share of the spoil. Another man, a carpenter, whom I knew in Melbourne, told me his gold had been sold, and realised £1,340. I met Mr. Hyde, the corporation overseer, on last Friday morning, about 8 o'clock. He and his party had arrived on the previous day, and commenced work in the afternoon; he showed me the produce of their labour during the few hours which they had been at work, and I believe it could not have been less than a pound and a half. One party, several members of which I am intimately acquainted with, but am not at liberty to name, as they are preparing to come down by the end of this week, and wish to take a start of their friends, assured me that during last week alone they had *half a hundredweight*, besides a large quantity realised previously, and as the vein still continued good, they expected this week would add largely to the stock.

* * * * *

It is not true that there is a stream of water running near the commissioner's camp, nor yet in any other part of the present diggings; but the water is neither so scarce nor so bad as I expected to find it, nor are public morals so low as I anticipated. I saw none and heard of very few instances of improper conduct. The Rev. Mr. Harcourt preached on the ground on Sunday last to a large congregation. Several ministers could be well employed constantly on the field. I estimate the number of persons including women and children at 20,000. Stores are abundant, and most goods are to be bought there as low as in Melbourne."

The following shows the manner in which the gold is found :—

"The heaviest nugget, or lump of solid gold, yet found in the colony, was brought down from the Turon, and purchased by Mr. George A. Lloyd. It weighs *seven pounds*, and contains only a few specks of quartz. This seven-pound piece was found by a man named Thomas Treleaver, a miller, lately in the employ of Mr. T. W. Smart. He went out prospecting, and on the banks of the Turon, about eight inches from the surface, his pick came in contact with this splendid treasure, which was embedded like a wedge between two solid pieces of quartz, seeming as if it had found its way into this receptacle in a liquid state. The lucky finder, trembling with his good fortune, thrust the gold in his red nightcap, and made the best of his way down to Sydney, where he arrived, and sold his treasure to Mr. Lloyd. He would not reveal the precise *locale*, but stated his intention of starting back to the lucky spot with all despatch."



PIECE OF CALIFORNIAN GOLD.

In the colony this discovery of gold is naturally looked upon as an "unmitigated evil" by the old settlers, who find their establishments broken up, their servants deserting to the diggings, and their flocks and herds left untended in the boundless forests and plains of the interior; but that the discovery will, in the end, be of infinite value to Australia, cannot be doubted. Emigration will be directed there; another great English empire will rise on the Australian continent, and an unlimited market opened to our manufactures. Many years must, necessarily, pass over before this takes place; the disorganised society must gradually return to a settled state, and to time must be left the task of solving the "*great gold question.*"

THE FOUR AGES; FROM DESIGNS BY T. JOHANNOT.



III.—MANHOOD.

The artist has symbolised manhood in the person of an iron-clad soldier, taking leave of his weeping family, because in war, more than in any other pursuit of life, the masculine qualities, of skill, courage, coolness, strength, and judgment are all brought into play. Intellect and physical force put forth all their powers; but the passions are abused. And in the rude and semi-barbarous ages, to which art ever loves to recur, the valorous soldier was considered the embodiment of all that was glorious in action, and pure and graceful in private life. It is true that facts did not always support this pleasing theory. Coarseness and brutality too often went hand in hand with the genius of war, and he who was unnerved at seeing the parting tears of his own wife and daughters, too often had but little pity for those of others. But the standard which chivalry set up was

a lofty and noble one, and we can hardly wonder that poets and painters love to copy it. Bayard, the *chevalier sans peur et sans reproche*, was perhaps the only knight of the middle ages who nearly resembled this model, and who, whether on tented field or in the halls of council, or in the society of the fair sex, was still heroic, disinterested, simple, frank, and truthful. He was the beau ideal of manhood in its prime, dreaming

> "Of basilisks, cannon, culverin,
> Of prisoners' ransom, and of soldier's slain,
> And all the currents of a heady fight."

The battle-field was then the only one on which man could play a distinguished part. The thousand paths to fame, fortune, and usefulness which now lie open to every youth were then unknown. Men's name and memory, and their powers for good or evil were watched over by the sword alone. Stern determination, backed up by brute force, now belong to the past; at least they are not considered indispensable requisites in the formation of a great character. But art loves the past. How many times in the long roll of ages has the scene our engraving describes again and again recurred, from the time when Andromache fell upon the neck of her lord, and implored him not to face the swift-footed Achilles, down to the parting of Hotspur and Lady Kate, when he made the "crop-eared roan his throne," and rode fiercely to the onslaught!

But now how changed! How many other pursuits are opened up, as honourable, as full of distinction and reward, and *more* useful than that of arms; how much higher our objects and ambition, when on emerging from youth we find ourselves engaged in the actions and interests of the world, with increased strength of faculty and purpose. It is in manhood that the real history of life begins, and that we see the mighty works that our fellows have done, and thence learn what we ourselves are capable of achieving. To see man in his glory and prime, we must not now go seek him in the field of carnage only, but everywhere,—in the courts, in the legislature, on the sea, in the counting-house, on the platform, in the pulpit, and last of all at home. Gain what triumphs he may elsewhere, fortune in business, applause among nations, favour with rulers, love among the people, a name to last in literature, admiration in the senate, glory in the field,—if his inward and his near life are barren or bad, he is unhappy, and though the splendour of the circumstances by which he is surrounded conceal the malady, they cannot cure it.

Youth is of the future; maturity, of the future and past; childhood has nothing but the present, and age, nothing but the past. Manhood is the period of action, for the strength and intellect are now in their prime. New sensations, fresh impulses, quick alternations of desire, rapid emotions, intense passions, plans, projects, enterprises, are not for the dim eye, the deaf ear, the rigid nerve, the sluggish blood, and the conservative habits of intellect and opinion which both the mental and physical influence of age tend to consolidate. In manhood, our struggles with desire have in a great measure passed by, and we are now reaping the fruits of our triumph. We have attained to the calm and bright spots, from which, as we look back, we rejoice over our early efforts. We perceive how dismal, perplexed, and dark, our lot might have been, had we instead of resisting passion, resisted duty. The resistance, it is true, cost us pain. We gave ourselves to solitude and study, which many a time the soul revolted against as hateful drudgery. We denied ourselves the field and the shady wood, when our hearts leaped to enjoy them. Lessons ceased to be tasks, and in time they became knowledge, and knowledge made us wise. All the victories, in science, art, or learning, that the greatest men have ever achieved, have been but so many triumphs over opposing inclination, and strength thus acquired goes on accumulating from day to day, till in manhood, it reaches its climax. See what it has done. How many mighty works, that will last as long as time, were composed amidst the distractions of adversity, or under physical or mental suffering, or in the damp vaults of a dungeon! Manhood is the perfection, the fulness of life. The life we now live is in the flesh, and it must be essentially practical, and not one of mere sentiment, or thought, however grand the thought, or generous the sentiment. The path which leads to the mount of rest does not lie among flowers; and he who travels it must climb the cold hillside, must have his feet cut by the pointed rocks, must faint in the valley, and often rest at midnight in the sandy desert. It is no small thing for which the true man strives; and whether cased in steel for the armed encounter, or bent on the nobler mission of elevating the people and alleviating the ills of humanity, he must be deaf to the imploring accents, and unmoved by the hot tears of those who love him when the voice of duty calls him away.

THE DIAMANTOID, OR ROUGH DIAMOND.

The diamantoid is a kind of stone recently discovered in Bengal, and now used by most lapidaries in polishing precious stones, instead of diamond dust. It has all the physical properties of the diamond, except the crystalline appearance,—the same specific gravity, and the same hardness, and will scratch any other body, although no other substance can scratch it. It exhibits the same chemical reactions, whether in a moist or dry state, that is to say, it is insoluble in acids. Having been burnt in pure oxygen, by the same means as are employed to produce combustion of the diamond, it only gives carbonic acid, with a very small residue of ashes, supposed to be produced by the presence of foreign matter. Its chemical composition then, as well as its physical constitution, is identical with that of the diamond. But as it is not crystalline, it wants the glitter and limpid appearance which give precious stones so much of their value.

The diamantoid is found in large shapeless masses, the corners of which appear battered by constant friction, but not rounded off like pebbles. These lumps are rather rough on the outside, and are of a black or brownish colour, generally very dull; sometimes, however, they shine like graphite. They break in unequal parts, and when examined with a microscope, display a great number of minute cavities, separated by irregular plates slightly translucid, reflecting the solar rays in a great variety of colours. Their size is variable.

We do not yet know the precise manner, or the exact locality in which the diamantoid is found; some say in the same alluvial deposits as the diamond; and as its age is not known, neither is its origin. This would doubtless furnish an interesting subject of study to the geologist. It is more than probable, however, that it has been formed under the same circumstances as the diamond. In this case, it would, as geologists say, have been created by the transformation by caloric, or by electro-chemical currents of organic carbonaceous matter, buried in the rocks where it is found. But the diamantoid must have been subjected to this agency in a less degree, as it wants crystallisation. Its molecular formation is intermediate between the perfectly crystallised carbon, and amorphous carbon, such as coke and charcoal, forming a connecting link on the one side between the black diamond and the graphite, and on the other approaching the anthracite, the most stony, if we may use the expression, of carbonaceous minerals, and the origin of which is well known.

Whatever may be the value, however, of these scientific investigations, the discovery of the diamantoid is a fortunate one for the lapidary. Like the diamond it is the hardest of all bodies, and answers the same purposes in the arts and industry.

INDUSTRIAL EXHIBITION AT CORK.

It may seem a matter for surprise that, notwithstanding all that has been said and done within the last few years with the view of ameliorating the material condition of the Irish people, they should still seem to set at nought all the efforts made to retain them, and continue to fly across the Atlantic every year in increasing numbers. There are two reasons for this;—one is, that there has been during the whole of the last half-century such a prodigious deal of talk which has led to no practical result, that

faith in speculations has almost died out amongst the lower classes, and nothing short of immense success, and tangible returns, will ever be sufficient to revive it. Another is,—the undue interference which the government or its agents have in past times been accustomed to exercise in almost every department of industry, encouraging particular branches of manufacture, and doing all in their power to put down others, until the people have got to believe that there was nothing true, real, and lasting but potatoes, and to the potatoes they stick with an energy and determination worthy of a better cause. When these failed, everything went wrong, and the consternation was as great as would have been produced amongst the ancient Romans, had they got up some fine morning, and found the Coliseum prone in the dust. People in England now thought this was a capital opportunity for changing the whole face of the country, by relieving the population, and at the same time promoting useful public works. But the government would not lend the money to private individuals, and let them follow their own course. It lent it to Baronies, and Committees, and Road Sessions; and the Baronies, and Committees, and the Road Sessions, fell upon it like wolves upon a dead carcass, and swallowed it up, leaving not a trace behind, but long white tracts of upturn earth, like huge bones bleaching in the wind, which were intended to be roads, but which for want of funds are left half-finished.

When the country began to recover, however, and the Encumbered Estate Court had thrown the wretchedly-managed estates of the old proprietors into the hands of enterprising capitalists, industry began to raise its head. But it has had formidable difficulties to contend against. To carry on manufactures of any kind on a large scale, skilled, trained labourers are required. In Ireland these can hardly be said to exist. The great mass of the population is entirely devoted to agricultural pursuits, and even these operations are conducted in a rude and unscientific manner. The manufacturer, then, had a double difficulty to encounter; not only should he erect buildings and import machinery, but he had to take his workers from the plough, and render horny hands capable of performing the manipulations in processes which require a greater or less amount of skill, experience, or delicacy of touch. But this has nevertheless been overcome, and so rapid has been the progress made in art and industry during the last few years, that it has been determined to have an industrial exhibition at Cork, to be made up in the main of native contributions. There has been amongst its promoters more fishing for patronage, and applications for great names, to stick on paper like the subscription-list of a charity, than we like to see. This denotes the existence of some of that spirit of dependence upon the aid of others which has so long been the curse of Ireland, but which will no doubt in time wear out. But still it is a step in the right direction, and we have no hesitation in saying that it is to Sir Robert Kane that most of this progress is due. He it was, who first made the people acquainted with the advantages of their position, and the untold wealth that lay hidden in the bogs, bays, rivers, and mountains. In his "Industrial Resources of Ireland," he first made us aware that in the Connaught mountains there are iron-fields unequalled by any in the world for richness and easiness of access; that the peat by being compressed by a simple and cheap process answers all the purposes of coal and coke and charcoal for working steam-engines or smelting iron ore, that there was water-power enough in Ireland to work all the mills in the kingdom, and fish enough on the coasts to feed all the artisans that might enter them; and that the climate and soil were admirably adapted to the growth of flax and the production of wool. His work made a great sensation, although every fact it contained had been patent for two hundred years. People then began to bestir themselves. The government established schools of design in Cork, Belfast, and Dublin. These have been admirably attended, and the progress of the pupils has been rapid and gratifying. Efforts have been made, with considerable success, to introduce the manufacture of lace amongst the female poor. In industrial schools established in Belfast and Dublin, and managed entirely by ladies, this has been already done with considerable success. To convey some idea to the reader's mind of the difficulties they have had to encounter, we may mention that when the project was first thought of, the committee of management of the industrial school in Belfast endeavoured to procure the services of a Belgian girl to instruct their pupils, as in Belgium the manufacture of lace is very extensively carried on as a branch of household industry. Not one could for a long time be induced to come, even by offers of high wages. They were willing enough to come to England, but not to Ireland, which they believed to be in little better state than California. Whether their apprehensions have been dissipated by this time, we are unable to say.

One very important object which the Cork Exhibition will go far to accomplish, is the diffusion of information amongst the people of each district as to the produce and manufactures of the others. The railways now afford such facilities for travelling in the south of Ireland, that, if the directors act in a liberal spirit, we have no doubt that there is not a peasant or small farmer in the province of Munster who will not visit it. Not one of these was able to come to London in 1851, and the Cork exposition will have for them as great a charm as its great prototype had for the upper classes; and it will doubtless afford them a greater amount of instruction, because being necessarily on a small scale the objects can be examined in detail. The linen manufacture has flourished in the north for many years. The splendid array of muslins, diapers, table-cloths, &c., which were collected in the Linen-hall at Belfast on the occasion of her Majesty's visit, astonished and delighted every one who saw them. The trade is increasing every month, and the manufacturers are gaining a footing in every market of the world, in many places superseding the French cambrics, which have been so long unrivalled. But strange to say, every attempt to introduce the growth of flax in the south has hitherto been a failure. Whether from ignorance of the mode of culture and preparation, or from unwillingness to abandon old courses, the farmers would have none of it. But was it shown them in every stage from the earliest blossom to the finely-spun fabric, and a practical statement of its profits and advantages thus placed before their eyes, there can be little doubt they would return to their homes with new ideas and renewed hopes.

There would be also gloves and lace from Limerick, displaying taste, delicacy, and finish of workmanship, which reflect as much honour on the "city of the broken treaty" as its heroic defence in 1689; peat, iron-ore, and woollen stockings from Connemara, showing us rather what may be done in the west, than gratifying us by what is done. If the nomade tribes of this fine, but neglected, district can but support life during the present crisis, they may yet attain to a degree of prosperity of which they never dreamt. They must remain in the country at all events, for they cannot obtain the means of going to America. The Beetroot Sugar Company, who have established their factory at Mount Mellich, in the Queen's County, and are, we are glad to say, progressing rapidly, having found plenty of active and docile workmen amongst the peasantry of the neighbourhood, will be able to send some of the best specimens of their sugar, as well as illustrations of the various processes of the manufacture. Here is another prospect for the Munster farmer. This company complains chiefly of not being able to find a sufficient supply of beet-root, and offer to purchase all that may be grown, at a rate which would prove highly remunerative to the consumer. But who that knows Ireland, does not know that none but the people in the immediate neighbourhood know anything about this? But if the Tipperary men visit the exhibition they will see and learn all about it, and find that the railway which passes their doors will deposit their produce at Athy, within a few miles of the factory, and bring them back more money for an acre of beet, than the potato in its palmiest days ever did;—more money, because it will inculcate habits of painstaking industry which no potato cultivator ever had or could have; because the potato being a good-natured root, does everything for itself, and lets its owner take his ease. And we have no doubt that the gentry and the various societies, and schools of design in Cork and elsewhere, will contribute their works of art, paintings, models, casts, curious relics of antiquity (of which Ireland contains, perhaps as many as any country in Europe), and the college will contribute its learning,

in illustration and explanation of the whole. A powerful stimulus would thus be given to the material progress of the country, and an amount of education both for the eye and the mind, which might be productive of incalculable benefits to the whole population.

The "blarney-stone," that famous smoothener of tongues, might be unhooked from its precarious position in the wall of the old castle, and give the visitors an opportunity of embracing it without climbing the rickety tower where it now hangs. How Cromwell would look amazed, could he in the midst of all, revisit the scenes of his old exploits! Could one of the M'Carthy Mores, if restored to life, ever believe that the site of the Industrial Exhibition was part of the territory over which he and his clan held sway! The gentle Spenser, the author of the "Faerie Quene," spent some happy days in a shady valley near Cork. Were he to revisit scenes of his early wanderings and musings, could he believe that the country was the same from which he had fled in the night from the burning ruins of his house, pursued by the fierce war-cries of the insurgents, or that the peaceful crowds who will throng the Palace of Industry, are the descendants of the barbarous tribes, who in his days, wore daggers and saffron cloaks, and long hair, and whose lives were one long foray, or rebellion?

NAPLES AND VESUVIUS.



VIEW OF NAPLES.

The accompanying view of Naples is taken from the midst of the villas and country-houses which cover the hills, at the foot of which lies the old town itself. Over the tops of the trees may be seen the arches of the viaduct which leads from the fashionable quarter to the summer palace of Capo di Monte, and which passes over a valley filled with the miserable abodes of the populace. The trees conceal from our view, as we stand on the terrace of the villa, the great hospital, called San Gennaro de Poveri, which gives entrance to the vast and curious catacombs, where the paintings of the Greeks, Romans, and Christians are still fresh-looking and brilliant, surrounded by erections of astounding grandeur and magnificence. The new town in which the rich reside, extends from Toledo to the king's palace, along the brow of the hill behind the gardens of Villa Reale. The old town, low-lying, fetid, and filthy, inhabited by a half-naked, and turbulent population, narrow streeted, irregular and confused-looking, lies before us on the shore of the bay, with the towers of churches and convents rising above it, which were erected in the middle ages to hold out to these miserable wretches the prospect of that happiness in the next world, which had it been denied them in this. Beyond, clusters of houses may be seen scattered at intervals along the sea-shore. These are the villages of Portici, of Resina, of Torre del Greco, and of l' Annunziata. Beneath Resina and Portici lies Herculaneum; and farther on, near the foot of the volcano,—Pompeii, the the buried cities of the ancient world; farther still, was another named Stabia, no trace of which has ever been discovered, and at the extremity of the horizon appear the verdant Castellamare, and Sorrento. In the midst of all these lies the sea, calm, clear, and blue; and beyond all, Vesuvius crowned with smoke and flame.

Such is the country which is now possessed by the most reckless, lazy, and superstitious race that ever cursed a fertile soil and glorious scenery. Everything that nature can produce to charm the heart or delight the eye is here found in rich profusion; and many a tourist who has wandered over Europe, along the vine-crowned banks of the Rhine, or the valleys of the Tyrol, or has lingered amidst ruins of the Parthenon as it was gilded by a Grecian sunset, and been soothed by the soft murmurs of the Egean, or has rambled along the shores of the Bosphorus, rich as it is in picturesque combinations of water and wood, rendered classic by a thousand historical reminiscences and inspiring sentimentality by the old and oft told tale of the loves of Hero and Leander, has been forced to confess on arriving at Naples, that the scene before him surpassed all others. The shores of the bay are rounded with lines of exquisite grace and beauty. It is closed on the side of Naples by the Cape of Mysene, and the side of Sorrento by Cape Massa, the former of which makes between it and the promontory of Pausilippo another beautiful creek, that of Pouzzoles. It is guarded on one side or other by islands which seem scattered there like sentinels to watch over the gulf. Ischia looks like a great ship swinging at her anchor, by the side of which, Procida lies like a little launch or barge. When we pass between these two islands, and look back upon Naples hiding herself, as it were, in one of the many folds or indentations of the coast, in the midst of graceful and verdant undulations of the surface, and surrounded by hills rising gradually higher and higher till Vesuvius towers above them all, the spectator can hardly bring himself to believe that the scene before him is not the vision of a dream, or that even nature herself could produce combinations of such marvellous beauty. The light plays on every part of the landscape with that wondrous brilliancy for which Italian skies are famous, producing the most astonishing effects of chiaroscuro, bringing the low-lying parts into salient projection, and diffusing a soft and tender radiancy over the whole. Often, also, it seems to become mingled with coloured vapours, and gives a purple tint to air, earth, and water. Everything appears for the time to have received a coat of one and the same colouring, and in a moment all is changed, as if to strike one with astonishment. A painter who has not seen this transfiguration of nature under the influence of light, does not know what colour is. The Neapolitan landscape is incapable of being properly transferred to canvas. Even Claude Lorraine has not reproduced it with faithfulness.

The naturalist, as well as the painter, may find at Naples a multiplicity of objects for study. In other parts of the world the general features of the landscape are unchanging; but in Naples there is a change in the configuration of the country almost every year. Vesuvius, which every night throws up new objects for the investigation of the man of science, every hour presents a different aspect. An elevated point called Cima, rises still higher than the crater, and there can be little doubt that in it the crater was situated in former times, from which issued the lava which destroyed Herculaneum and Pompeii. Some years ago, the crater was a vast abyss, the top of which one could lean over, and look down into the interior. At present, it is filled up nearly halfway, and in the centre a cone rises with a narrow opening on the top, through which smoke and flame are constantly issuing. Whenever a large quantity of the *débris* is collected, it is thrown off by a violent eruption, which sometimes changes not only the shape of the mountain itself, but often the configuration of the country around its base. A meteorological observatory is built, on the side near the top; but it does not seem to be a very safe position for the observers.



INTERIOR OF THE CRATER OF VESUVIUS.

But it is not only in the curious phenomena presented by Vesuvius that the visitor finds something to interest and delight him. The little bay of Pouzzoles, reproduces with less vigour but with more astonishing effects the phenomena and beauties of the gulf of which it is at the same time a part, and a perfect image.

Naples possesses still greater attractions for the antiquary than for the naturalist. The volcano, which is stated to have ingulfed the cities of antiquity, has preserved them for our exami-

nation. Nature has saved them by its own fury against destruction from the hands of man. Herculaneum and Pompeii, buried under the dust and lava of the volcano some years before the Christian era, furnish now, when excavated, the most interesting and extensive remains of antiquity which have come down to us, though, in all probability, those that have been already discovered are by no means either the richest or best of them. Here we have produced before our eyes curious revelations as to the private life of the old Romans, their furniture, manners, and customs. And in other remains which the same eruption has preserved to us, we can lay our hands, so to speak, upon the highest forms of their faith, their poetry, their learning, and the mighty powers of their civilisation. Through the whole extent of the country may be seen immense caverns excavated in the rocks on the mountain-side, which, for aught we know, may have served as abodes to the pristine inhabitants, like the Testrigones of Homer, or the Myrmidons of the island of Ægina. The most curious of these subterranean passages or caverns is that in the bay of Pouzzoles, on the bank of Lake Avernus, in which the famous Cumæan sibyl is said to have dwelt. Virgil was fully authorised, without doubt, by old traditions to people the spot with strange apparitions. The phantoms seem to glide still along the steep shore of the lake from the sibyl's grotto, which opens in the midst of leaves prematurely withered by the cold air of the valley, and looks dark, mysterious, and half-hidden, like the gate of the ancient Hades. Passing along its damp and obscure corridors, we arrive at the recess in the interior of which she was in the habit of reposing after the bath, and to which none but the emperor was ever admitted to converse with her upon the destinies of the world.

Between Baia and the Cape of Mysene, upon the banks of the Mare Morto, are the "Elysian Fields," a burial-ground close to the water's edge, and the foot of a range of hills which ward off the winds from every quarter, and make the air above calm and still as the everlasting sleep of those that rest beneath the turf. The soft waters of the bay gently beat against tombs, and over them spreads the foliage of the numerous trees, graceful, transparent, and light as the shadows they throw on the ground. No wonder the ancients called the place the Elysian Fields, as emblematical of the repose of the spirit-land where the good, and brave, and wise wandered for ever in dreamy pleasure. Tradition says that the Cumæans were in old times in the habit of ferrying their dead across the stream which they likened to the Styx of the other world, in order to deposit them in this tranquil valley. The boat, the passage, and the "place of tombs," thus became the symbol of the grand ideas of the nations of western Europe. We can never have a just notion of the august simplicity of the ancients until we have seen the places to which they attached some of the sublimest fictions of their mythology. Nor can we form the remotest conception of their magnificence until we have travelled along the coasts of Naples, which they have covered with monuments of their luxury and splendour. Baia and Pouzzoles have preserved the best remains of these; in some places the ruins are still standing upon the shore; in others, the sea has made inroads upon the land, and swallowed them up; but on calm evenings the peristyles of temples and the domes of palaces may be distinctly seen at the bottom.

Beside the craggy rock of Gajola, a flight of stone steps rises abruptly from the water, and doubtless in former times led to the palaces built upon the hill near the shore. The inhabitants call it "Virgil's School," as if the poet had there held communion with the waves. In the same place, in the midst of rubbish thrown up by recent excavations, may be seen the outlines of a villa which tradition states to have belonged to Lucullus. Flying from the monotonous and sultry plain in the centre of which they had fixed the metropolis of the world, it was to Naples that the Romans always repaired for pleasure in their leisure hours; it was there that Art, cherished and encouraged by a delightful climate and glorious scenery, seemed to labour in man's service alone; it was there that the genius of the Latins, coming in contact with the Grecian delicacy and refinement, was softened and improved by the union, and produced some of the most glorious works of ancient civilisation; it was there that Virgil equalled Greek poetry in the midst of towns and villas which rivalled those of Greece in elegance and taste. In the Museum of Naples are collected all the paintings, sculptures, inscriptions, furniture, ornaments, books, &c., which have been found buried in the earth in various parts of the adjacent country. Fully half the books are found to be works of Greek authors, with which the Romans were in the habit of beguiling the hours of elegant leisure. But in the buried cities all is still the same as before the lava flowed from the blackened mountains. We can there place our foot in the track left by the Roman sandal, and awaken the echoes which their voices, long silent, once called forth, and in some sort read the measure of their ideas upon the walls on which their eyes were many a time fixed, when the words fell from their lips which were to decide the fate of nations.

Upon this smiling tomb of antiquity, a lively and excitable population swarms at the present day. There is not in the world a people who bear their misery, and degradation of their condition, with more gaiety and animation. If the stranger can become reconciled to their nakedness, squalor, filth, and ceaseless begging, and their language at once elliptical and redundant, he will soon begin to perceive in them a vast amount of innate power and resources. Poetry, which dies out in the midst of wealth and civilisation, lives here in the midst of indigence and ignorance. Every day at the same hour, the *improvisatori* assemble on the Mola, and pour forth in discursive, but harmonious language, the epics, which their poets of an earlier date have handed down to them. Passing from scenes like this, recalling to our minds the rhapsodists of ancient Greece, we may plunge at once into the midst of scenes and society of which the ancients never dreamt. We may ride on the railway to visit Cicero's house, at Pompeii, and measure the Pelasgic pavement, on which the old waggons and chariots have left their track; and returning to the city, jostle amidst crowds of pedestrians in the Toledo, or be run over by a brougham or char-à-banc in Chiaja. All around is the gaiety of Paris, and the wealth of London; boundless luxury and profusion, all that can charm the ear and delight the eye, a sea glittering like gold by night or by day, a magic sky, on every side the most glorious memorials of Greece and Rome. No wonder that the people in the midst of the rags and slavery, still shout with enthusiasm, "*Vedi Napoli, e poi mori!*"

To ascend Vesuvius during the day is a capital exercise, for the lungs and muscles. Adventurous individuals who are desirous of having a peep into the crater, generally start from Naples after breakfast, about nine or ten o'clock in the morning, and can get back in time for a six o'clock dinner, after having amply gratified their curiosity. The Neapolitans love foreigners for the sake of foreign money; and they have, therefore, done everything in their power to attract them, by smoothening the ascent, and thus as far as possible diminishing the fatigue, so that there is now neither much glory nor much danger in climbing Vesuvius. The only risk lies in the probability of an eruption, when one is on the top, but the good-natured mountain takes care to growl and fume a good while before proceeding to extremities, so that few are taken unawares.

The mode of ascent depends very much upon the object the traveller has in view. Some go up to escape from ennui; others for the poetry of the thing, others for the pleasure of it; some few for scientific purposes; a great many from mere curiosity, expecting to see what sort of a place the lava is manufactured in, and a greater number still to have something to boast of, and frighten the old ladies with when they get home. Rich, *blasé* travellers, generally ride in a calash to the hermitage, that is two-thirds of the way; they have then only to climb the cone at the top; but this is accomplished by the aid of guides, litters, and handbarrows. It is greatly to be regretted that a wealthy man cannot order an eruption of the volcano at a given hour, have the account sent in, and pay for it, as he does for everything else.

But those who travel, with some sort of enthusiasm for the work, with the feeling that they have "a mission," as everybody is said to have nowadays, and who believe that nothing

is much relished that has not cost some labour to obtain it, climb the mountain either alone, or with one companion, and "rough it" all the way on foot. The tourist must, on arriving at the base, lay aside all thoughts of the world below, and deliver himself, soul and body, to the task before him, keep his eyes fixed on the summit, and his thoughts in the crater. Every time he sits down to rest, he may enjoy a treat, the like of which cannot be had in any other part of the world, the frequent changes in the perspective, the splendour of the sky; the azure colour of the sea, the long black lines where the lava seems to descend like streams between verdant banks, and the glorious plain below, beneath which the ancient cities lie buried, combine to form a scene of enchantment; and then on reaching the top, where you seem to stand on a heap of ashes, half stifled with noisome sulphurous exhalations, with everything around, black, scorched, and dismal, away in the distance appears Naples, white and beautiful as marble, with its glittering bay, studded with islands like diamonds set in gold, from which the sunlight flashes in splendour; who that has ever beheld all this, does not feel the truth of Chateaubriand's exclamation, "*C'est le Paradis vu de l'enfer!*" "It is Paradise seen from hell!"

By another class of travellers, whose finances do not allow of their fitting out an expedition for their own special benefit, the following plan is adopted:—Upon a certain day the names of all those staying at the different hotels in the city, who wish to join in making an ascent of Vesuvius, are taken down by one of those enterprising and officious individuals who abound in every part of the world, and on an appointed day they all assemble and breakfast early upon oysters, soaked in the Ischian white wine, and set out in carriages towards Portici; and they are assailed, long before reaching the place, by a horde of guides, all recommending themselves and their asses or mules at the top of their voices. At last, in the midst of awful uproar and confusion, a bargain is struck for the services of a certain number of men and donkies, and the more ridiculous the equipage of the party, the merrier are they. At last, they all set out together along the road through the vineyards, shouting with laughter, joking, trotting, and galloping. Some of the donkies get restive, and give indications of a desire to go no further, or unseat their riders by sundry vigorous elevations of the more ignoble portion of their animal economy, or become unmanageable and go where they please; but at last, in the midst of the tumult and confusion, the party arrives at the *Hermitage;* and here, whether hungry or not, every one must eat,—whether thirsty or not, he must drink. This is a part of the proceedings which no one is allowed to pass over. Having drained some glasses of "*lacrima-christi;*" wine grown on the spot, on they dash, the verdure begins to get thinner, and at last disappears altogether, the ascent steeper, and nothing but lava on every side. The asses are now abandoned, and the travellers begin to climb over the huge blocks which cover the side of the hill. The ladies are sometimes placed in a chair supported on two long poles, and thus carried up by two sturdy guides; many of them, however, trust to the assistance of their chaperons, and make their way on foot. As they advance the ground gets rather warm; and through the fissures which now and then intersect their path, the lava may be seen still in a molten state, with sulphurous fumes coming up from it. The gentlemen thrust in their sticks or pieces of paper, the sticks begin to smoke forthwith, and the paper goes off in a flame, and the young ladies, especially the English, give utterance to vehement ejaculations of surprise at such an extraordinary phenomenon. They sometimes thrust a coin into the lava, and drawing it out again, the lava cools upon it, and thus remains a memorial of the ascent. Sometimes also they dine near the crater, and boil eggs and make coffee in the burning crevices. Having satisfied their curiosity, they descend,—but of course much more rapidly than they ascended, passing over in five minutes a distance which consumed half an hour to get up, sliding the whole way, till on arriving at the foot of the cone, they remount the asses, and ride back to Naples, where they treat their friends to reminiscences of the trip. Our engraving may give the reader a good idea of the state of the crater within the last few years.

The following summary, by Sir R. Phillips, of all that is known as to the origin and nature of volcanoes, may not prove uninteresting to our readers:—

"The mixture and confusion of materials which compose the crust of the earth, and the great internal heat, necessarily generate combustion, and also create various gases in caverns and hollows, whose expansion rends the incumbent rocks and strata in earthquakes, while in some instances, where the materials are abundant, they give rise to vents called volcanoes.

"This chemical fermentation shows itself in various forms. Sometimes in mountains, where there is access of air, and the water of melting snows, or communications with the sea. At other times, in hot springs, in emissions of carburetted or sulphuretted hydrogen, in vents, explosions, and consequent vibrations of the strata, called earthquakes. As they may be imitated in various compounds, there is little to surprise in them, though much to dread, from their destruction of human structures, and the terrific magnitude of their devastations.

"They generate peculiar mineral products in lava, pumice, basalt, sulphur, &c., and the appearance of these is always a proof that the site has been volcanic. Water, by generating hydrogen, feeds, rather than smothers, such vast masses of burning materials, and hence volcanoes under the sea are very common, and by generating greater volumes of steam, they are more extensive in their action even than volcanoes on land.

"Taking volcanoes at 200, each operating on 100 square miles, they affect with their products 20,000 square miles, and if five times their existing number have become extinct, it gives 100,000 square miles of volcanic products. This, however, would be only the 20,000th part of the earth's surface. They may enlarge a mountain, and their gaseous products may cause earthquakes and uplift beds of strata, but it is fanciful to refer to them the inequalities of the earth's surface.

"Humboldt, a great authority on every subject, maintains that dynamical earthquakes, and chemical volcanoes, have their causes in the interior of the earth, and act through fissures and empty veins. He ascribes the mud and fishes, often distributed, to snow and lakes at the sides of volcanoes, and considers the matter properly ejected, as ashes and lava only. When the summit of Canguairazo, 18,000 feet high, fell in, 43 square miles were covered with mud and fish.

"Volcanic action does not consist in the combustion of beds of coal, but in chemical operations, seated deep in the oldest formations. The hot-springs in Germany issue from gneiss, granite, and clay-slate.

"Professor Daubeny ascribes earthquakes and volcanoes to the access of water to the inflammable bases of the earths and alkalies. When the explosion is single or double, and confined in a cavernous space, it is an earthquake; and when fed and supported by water, as in an elevation, it becomes a volcano. Humboldt and Davy also ascribe volcanoes to the oxydation of the bases of the alkalies and earths.

"Just as water burns potassium, calcium, &c., so it heats all other alkaline bodies, by imparting its oxygen to them; and this union, and loss of bulk, is the cause of earthquakes, volcanoes, hot-springs, &c.

"It is probably, also, a chief cause of subterraneous heat, since increase of temperature is the immediate result of the contact of water with any alkaline earths, alkaline states of metals, &c. When the fermentation is commencing, smoke appears; noises are heard; earthquakes take place; and explosions of ashes, sand, and stone, precede the flow of melted lava. The smoke consists of steam, and carbonic, sulphuric, or muriatic gas. The ashes appear to be exploded lava, and are often carried by the wind 100 or 200 miles. Thick accumulations form a compact stone, called tufa, and the scoria is like the slag of iron furnaces. The explosive force is such as sometimes to throw stones of 200 tons eight or nine miles.

"All volcanoes appear to exist near the sea, and, by the matter they eject, to have some communication with it.

"Countries, near mountains, are more subject to these effects, because water penetrates their sides to the secondary rocks. Where, frequently, the escape of gas might be facilitated, by boring down to the granite.

"Ships, by a sudden protrusion of the water, feel the blow as

though they had struck on a rock. In this mechanical effect there is no indication of electrical action, and, in truth, the whole, beyond doubt, is a mere gaseous expansion under masses of strata. No doubt, also, the earthquake arrests for the moment, the librations of the unlying masses of water.

"A line of granite hills has obstructed the action of an earthquake from one side to the other side, the tertiary and secondary strata being evidently those affected.

"A single shock lasts a few seconds. The common occurrence of radiated rents in the ground points to the cause in confined gas. Caverns and hollows in the earth give way, and often swallow tracts, which fill up with water from the adjoining strata.

"There is no evidence that volcanoes are so much as five miles deep.

"The American volcanoes throw up chiefly slime and mud, with slag and ashes.

"Primitive rocks are not near volcanoes.

"With an inclination of only 6 deg. no lava from a volcano can rest on its sides so as to increase the bulk; but in Etna, &c., the rise is 29 deg. to 32 deg. The strata of tufa round Vesuvius is not a product of the volcano, but a marine formation like limestone, and has its own crystals not volcanic. Von Buch says, the volcano forced its way through the tufa. The hills are composed of trachyte, a coarse, splintery basis, in which are embedded crystals of glassy felspar and augite. Cones of volcanoes are sudden elevations through casting.



ASCENT OF THE CONE.

"Geological theorists assert, that the inequalities on the earth's surface arise from upliftings by volcanoes, earthquakes, &c., and to these they ascribe the inclinations of strata, &c. &c. But the minute seams in sandstones, and the parallelism of the strata in the same formations indicate that the whole is the effect of depositions and precipitations, while in the submersions by the sea, and the advance and retreat during perihelion periods, we have the aqueous agency required for the precipitations.

"About 200 active volcanoes are recorded, of which 89 are

in islands. Submarine volcanoes often throw up islands. The Azores, the Lipari, the Canaries, &c., are examples.

"The ashes from volcanoes often produce total darkness from thirty to fifty miles round, and they often fall in showers from 200 to 300 miles distant. Pieces of rock are ejected with the velocity of a cannon-ball. Cotopaxi once threw a piece of 100 cubic yards eight miles. Fish ejected from volcanoes are those of neighbouring waters.

took fire in lava three and a half years after it had been ejected, at five miles from the crater.

"Stones of immense size rise to the height of 7,000 feet, and others, darkening the air, fall 100 miles distant.

"Thirty-one great eruptions of Etna, have occurred within the records of history.

"In an eruption in the year 1693, the city of Catania was overturned in a moment, and 18,000 people perished



DESCENT OF THE CONE.

"Lava is a stony substance like basalt, and may sometimes be seen at the bottom of a crater red-hot, like melted metal, bubbling as a fountain. When it overflows the crater, it is very fluid. At Vesuvius, a red-hot current of it was from eight to ten yards deep, 200 or 300 yards broad, and nearly a mile long. In Mexico a plain was filled up by it into a mountain 1,600 feet high, by an eruption in 1759. Its heat was so great, that it continued to smoke for above twenty years afterwards; and a piece of wood in the ruins. The crater of Etna is a quarter of a mile high on a plain three miles across. It falls in about every hundred years. The mouth is a mile in diameter, and shelves as an inverted cone, lined with salts and sulphur. The central fiery gulf varies in size; and noises arise from it with volumes of smoke. D'Orville descended by ropes near to the gulf, but was annoyed by flame, and sulphureous effluvia."

THE BUTTON MANUFACTURE OF BIRMINGHAM.

"He is not worth a *button*," is a phrase which has been frequently regarded as descriptive of some individual, commercially, and even morally. And yet, scarcely any one that could be selected would be less definite than this. The man who passes along the street with a basket of flowers on his head, crying musically enough, "All a blowing—all a blowing," could name at once the price of those "bachelor's buttons" which form a part of his blooming stock, and a very little arithmetic will determine the value of one of those bright yellow blossoms; but the worth of a button—that convenient, ornamental, or indispensable article, often multiplied profusely on our garments—cannot be so readily estimated. For though apparently insignificant, a button has been made of substances as dissimilar to each other as they are various in their application, from a rude piece of horn to a precious stone; and from the stamped or cast pewter disc affixed to a military jacket, to the spade-ace guinea buttons profusely adorning the dress of the late Mr. Mellish when he startled the gazers on the race-ground at Doncaster; or the most costly and splendid article that modern ingenuity, when tasked, can produce.

Hutton, when describing the "toy trades" of Birmingham, speaks of their first appearance there, in the beginning of Charles the Second's reign, in endless variety; and thus proceeds:—"The first in pre-eminence is the button. This beautiful ornament appears with infinite variation; and though the original date is rather uncertain, yet we well remember the long coats of our grandfathers covered with half a gross of high tops, and the cloaks of our grandmothers ornamented with a horn button, nearly the size of a crown-piece, a watch, or a john-apple, curiously wrought, as having passed through the Birmingham press. Though the common round button keeps on with the steady pace of the day, yet we sometimes see the oval, the square, the pea, the concave, and the pyramid, start into existence. In some branches of traffic, the wearer calls loudly for new fashions; but in this, the fashions tread upon each other, and crowd upon the wearer. The consumption of this article is astonishing, and the value in 1781 was from threepence per gross to a hundred and forty guineas." But what a bound in skill has this manufacture made—like every other—since Hutton's days! while what a button *might* be made, with all existing appliances, at the acme of the art, is a question which we shall not now attempt to solve. We shall take, therefore, the manufacture of buttons as it is; and having visited the establishment of the enterprising Messrs. Elliott & Co., and the works of Messrs. Hammond & Turner, so long celebrated for their metal buttons, we shall classify their products as well as we can, and then describe, with all the simplicity and accuracy we can command, the various processes through which different kinds of buttons respectively pass. We commence with

METAL BUTTONS.

The common gilt button is made of sheet copper, slightly alloyed with zinc, which, having been reduced by the Flatting-mill, is supplied to manufactories such as we are now about to describe, in strips. From these, circular pieces, technically called "blanks," are cut by a press adapted to this purpose, having a circular punch, worked by a lever or handle. A female, seated before a *blank-cutting press*, holds a strip of metal with one hand, and the lever in the other, and this being put in action, the punch descends and instantly cuts out a blank; and as she exposes new parts of the surface to the punch, the blanks are multiplied with surprising rapidity. In the same way, it should be observed, blanks of various kinds are produced. In all Button Manufactories there are numerous rows of these presses, differing in size and fitted with various punches and dies, according to the operations for which they are intended.

The common gilt buttons for coats, are formed of blanks flat on both sides; but the page in his sky-blue garments has perhaps, three rows of little globes suspended from his jacket; while the outer surface of the coachman's buttons are convex, like those of the footman, who stands so gingerly behind the carriage; and the rotundity and convexity of the two kinds are given alike to blanks *after* they are cut. There are differences, too, among convex buttons; for some are of one thickness only, showing at the back the concave side; while others are hollow, being formed of two blanks, one called the *shell*, and the other the *bottom*, and named, in consequence, *shell buttons*.

A machine, similar in principle to the punching press, but having, instead of a punch, a concave polished surface to act on the metal, gives to the blank the convex shape. Such is the facility acquired by practice, that a female will rendor convex twelve gross of blanks in an hour, which is not far from thirty per minute! This cannot fail to be regarded as truly astonishing, when it is considered that every blank is put separately into the die; that the hand acts on a lever that the punch may descend to give it the required impression, and that only one blank can be rendered convex at a time.

The edges of blanks, on being punched out of a strip, are so sharp, that they would cut anything with which they came in contact. They are, therefore, placed on a low table, at which a young woman is seated,—as in the illustration,—that she may roll them between two pieces of steel having concave edges. One of these pieces of steel slides up and down, being set in motion by the handle in the girl's right hand. The button has thus its edges completely rounded; and then, dropping into a drawer underneath, another blank instantly takes its place.

The two parts of a *shell button* are brought together by the application of a die and punch. So completely do they act, that the edge of the *shell* is bent over and lapped down on the *bottom*, uniting them thoroughly, without any other fastening whatever. Then additions are made—as the words stamped on the back, the crest of the nobleman or gentleman to whose livery the button will be attached; the decorations of those used by our sportsmen in allusion to fox-hunting, deer-stalking, and similar recreations; the symbols of various club-houses; the names of our railways; or the national devices peculiar to the army, or

> "The flag that braved, a thousand years,
> The battle and the breeze."

Such buttons are always produced by steel dies, with the design they are to give engraved in reverse. But sometimes there is a double pattern—one on the die, and one on "the force" which descends upon it. Men work the stamps for these purposes, as requiring greater power than the presses previously described, for which the hands of females are fully equal.

A shank is an obviously essential part of a button, but the simple portion of its structure, strange as it may seem, is produced by a distinct class of manufacturers, of which there are a few in Birmingham. The fact is, that there must be minute and costly machinery for the proper making of shanks; and thus they can be bought at a much lower rate from an establishment appropriated to them, than they could be produced at in any one engaged in so many ways as the button manufactories always are. A coil of brass-wire is so placed in a beautifully-constructed machine that one end gradually advances towards a pair of shears, which cuts off a piece of exactly the right length. It receives its form as a shank from being pushed forcibly into an instrument adapted to that purpose; the end is struck by a hammer, to render it level, and a final movement causes the shank to drop into a box, ready for use. Each one of three firms in Birmingham is said to have made, only a few years ago, two hundred millions of button-shanks annually.

Workwomen attach the shank to the button. For this purpose, the button is placed with its back uppermost; the woman places in it the shank, and tightly clasps them together, by means of a small piece of bent iron. She now applies a little solder to the part where the shank is joined to the button, and when hundreds of them are ready, they are arranged on an iron plate, and subjected to that precise degree of heat which will melt the solder, and combine the shank and the button firmly together. The looker-on may well be amazed at the celerity with which these various movements are made.

As we now enter the apartments where the *gilding* of buttons

is conducted, our conductor says, "There is a girl brushing on the gold." "Stuff" is the reply that instantly rises to the lips, "that's silver," and should it escape in an unguarded moment, the only rejoinder would probably be, "I beg your pardon, sir, it *is* gold; for as that metal is mixed with a great deal of mercury it becomes invisible, and the amalgam looks white." The whole process is well worthy of attentive examination. Forty years ago, the art of gilding buttons had arrived at such perfection in Birmingham, that a gross of them might be covered with three-pennyworth of gold, and were sold at a price proportionately low. An experiment was even tried to produce gilt-buttons without any gold; but though beer has been often made without malt and hops, to the vast profit of its brewer,—we must speak otherwise of its deluded and defrauded consumer,—the button manufacturer found in this instance that he lost more in the consumption than he saved in the material.

To form the amalgam, leaf or grain gold is dissolved in mercury, in certain proportions, by subjecting the mixture, for a short time, to a gentle heat, the mass being stirred with an iron rod. Having been poured into cold water, it is pressed in a piece of washleather, which allows any excess of mercury to pass through it, and leaves the amalgam fit for use. To prepare the buttons for its reception, they are thrown in their roughly-burnished state into what is called "quickwater" — a solution of mercury and nitric acid: the quicksilver attaches itself to the copper, and gives it a white appearance, and after repeated washings the buttons are dried and ready for gilding, which is applied by means of a brush. They are now shaken in a felt cap to remove the superfluous mercury, and are put into an iron gilding-cage, which is placed in a small furnace. This part of the process is shown in the illustration, where the girl appears opening one of the doors to see how it is advancing; and one of the cages may also be observed lying on the ground. A considerable loss was formerly sustained by the escape of the mercury; but, by that tact which is now so often discoverable even in the production of comparatively insignificant articles, the mercury is caught in the chimney, and after a time it is used again. Ingenuity has also been tasked to prevent the inhaling of the fumes of the mercury, which the former practice rendered very deleterious.

The gilding, moreover, is variously applied, and according to this is the name of the button. If the gold is brushed only on the outer surface, it is called "a top;" but when the entire surface is covered, it bears the significant name of an "all over." Nor are these the only distinctions, for some gilding is called "yellow," the colour being affected by the previous use of a mixture called "similor"—"gold-like," compounded of zinc and mercury; while another gilding is styled "orange," from a different application. The colour of the gold may also be heightened by other processes.

The buttons are *burnished* with bloodstone,—so denominated from its being supposed in past times, that when worn as an amulet, it was a good preventive of bleeding at the nose; but now well known as the heliotrope; a deep green siliceous mineral, somewhat translucent, and often variegated with deep red spots. Here the lathe is employed; with his left hand the burnisher fixes the button on the chuck, and while it revolves, he applies the bloodstone with his right; the ear catches a slight twang; when, with another touch, the button flies from the chuck, bright as the most radiant sovereign that ever issued from the Royal Mint. Each one is taken from water, which the workmen warm in winter, to be thus brightened, and as it is necessary that it should revolve against the bloodstone with the greatest rapidity, the burnisher often employs a boy to put in motion the lathe, by means of an additional wheel, as shown in the engraving. We now proceed to

PEARL BUTTONS.

The substance for these buttons is "mother-of-pearl,"—the hard, silvery, brilliant, internal layer of several kinds of shells, particularly oysters, which is often variegated with changing colours of purple and azure. The large oysters of the Indian seas alone secrete this material of sufficient thickness to render their shells available for the purposes of manufacture. One genus of these mollusks, called *Pentadinæ*, furnishes the finest pearls, as well as mother-of-pearl. It is found in the greatest perfection round the coasts of Ceylon, near Ormus, in the Persian Gulf, and among some of the Australian seas. The shells used for buttons, are bought by the ton in London, from the merchants, and are taken just in the state that they reach the docks to Birmingham. They lie in the store-rooms of the manufactories in great heaps, as they would had they been thrown there by a band of Titans who had retired to rest after regaling themselves with an oyster-supper.

The shells are simply washed with water, and are taken as they are wanted to the part of the establishment appropriated to the cutting out of "blanks" from them, and of this process we give an illustration. A man stands at a strongly-formed lathe, which, as it revolves, puts in motion a hollow spindle, which has at one end some saw-like teeth—it is in fact a tubular saw. While his foot keeps it in action, and his left hand presses the pearl shell against the teeth, and these work their way into the shell, his right hand is employed in moving the tube along until the shell is cut through. In this way flat circular pieces are cut out; the size being dependant on the tube, the diameter of which varies from the size of a scarcely perceptible shirt-button, to that of the huge disk, not *quite* so large as a soup-plate, a series of which often edges each side of the coat of a "fast" young man. The workman goes on cutting blank after blank out of one shell, till it will yield no more of that size, when, throwing it on the floor, he leaves its perforated remains that another workman may extract from them a crop of smaller buttons.

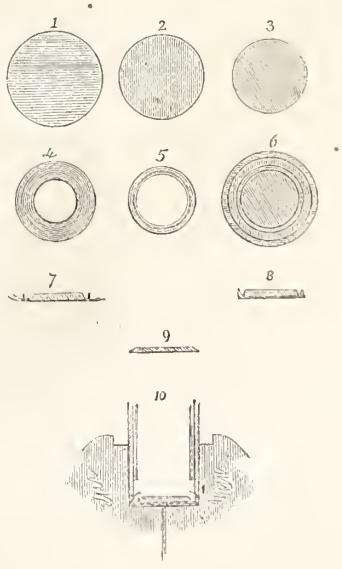
Here, the economy is apparent which is so often discoverable, and indeed absolutely necessary, in all our processes of manufacture; but another may now be mentioned. Until within the last few years, the dark-coloured portions of the shells were considered worthless, and were, consequently, thrown away; but the happy

Fig. 1.



thought occurred to some manufacturer, that dark-coloured buttons made from these parts of the shells might possibly find purchasers. The experiment was tried, and that with signal

Fig. 2.



success; for not only did they sell, but they actually became so much appreciated, that the black parts of the shells, and the dark shells from the South Seas, became even more valuable than the white ones.

After the blanks have been cut out, a boy rasps them on one side, so that they may lie flat when placed in the chuck—the revolving part of the lathe—to which they are now transferred; and the turner gives the side that is before him, the flatness, indentation, or convexity that may be desired. In some pearl buttons a metal shank is inserted; while it is often required that they shall neither have holes drilled through them, nor the metal shank appear in the face, as perhaps this part has to be committed to the engraver, that he may ornament it with some beautiful design. And yet the button must be, obviously, prepared for being attached to the garment; and as no glue can be used, nor any heat employed to solder it, a very ingenious contrivance is resorted to, which is illustrated by the diagram: *a*, fig. 1, is the shank as it comes from the maker; this the turner fixes in his lathe, and gives it the form of *b*, which shows it in section. In the blank he now cuts a hole—wider inside than outside—a section of which is shown at *c*, and the shank being inserted in this aperture, he gives it a smart blow with a hammer, which spreads out the lower thin edge of the shank, as shown in *d*, and this causes the shank to adhere to the button with the greatest firmness. We give in *e* the external appearance of the finished article. So strong is the adherence, that a half-hundred weight has been suspended from a button thus constructed.



BURNISHING BUTTONS.

These buttons are polished with brushes, soap, and rotten-stone. This part of the work is done by women, and like every process in this manufacture it is executed in a lathe. Women also drill two, four, or as many more holes as are required in these buttons, and that with surprising dexterity. A button, for example, is seen fixed into a chuck, when the ear instantly catches the sounds *—twit—twit—twit—twit*, according to the number of holes, and the button drops, infallibly pierced with those required, the distances being almost perfectly equal. In a similar manner, some buttons are adorned with rings, stars, and other decorations, according to the fancy or taste of the manufacturer; and finally, they have their edges corded or milled. The engravings of foxes, race-horses, &c., are always added by the ordinary process.

We advance to the manufacture of

FLORENTINE AND COVERED BUTTONS.

This class of buttons is of a more recent date than that of gilt or of pearl buttons. Such articles were first made by hand with a needle and thread,—as they are still by private individuals,—but the large demand created for such products, so exceedingly diversified as to defy enumeration, has given rise to a series of processes discovering great ingenuity. Mr. B. Sanders is said to have taken out the first patent for making covered buttons by dies and pressure, and to have removed from Birmingham to Bromsgrove, a town in Worcestershire, in order to conceal the process from eyes he regarded as too curious. But the iron shanks he attached to his buttons were disliked. On his substituting another of catgut, at the expiration of his patent, he could not secure a patent for the new material, from its having been fifty years in use, and the trade was, in consequence, thrown open to the employment of an increased number of persons. Mr. Elliott is mentioned as having displayed much ingenious contrivance in the structure of the presses now so largely in use.

We take, as an example of this extensive branch of business, the manufacture of linen buttons, which, when made by hand, for domestic use, demand much time and care,—illustrating our description by a diagram.

A blank of fine Irish linen being cut out by a press, to form the face of the button No. 1, another piece of a coarser fabric is cut, No. 2, to place immediately behind it, while a smaller piece than either, and of middling quality, No. 3, is cut out for the back. The next part of the process is to cut out from a sheet of metal a piece, No. 4, which is then transferred to another press to be shaped like No. 5, having, in fact, a little channel made all round it by the outer edges being turned up at right angles, thus forming an outer and an inner rim.



ROLLING THE EDGES.

It is now taken to another workman. There he stands attired in a green felt dress,—for other garments would be spoiled by the acid,—before a row of earthen pots full of divers liquids, and ready to suggest the caution,—should you be likely to approach too near,—"Take care of your trousers, sir." If now we look at his employment, we shall see that he is busily engaged in putting a dingy-looking lot of the button-rims, No. 5, into a perforated earthen pot; and then, taking it by the handle and dipping this vessel into another full of acid, giving it, at times, a dexterous toss he plunges them afterwards into water, where they have three or four rinsings in separate pots, till, finally, "the green man," though his colour be neither "Lincoln" nor "Forest," yet with an honest pride not always felt under a much gayer and richer costume, empties his rims—which he has thus effectually scoured, glittering like silver—into another vessel.

The subsequent stages of the linen-covered buttons are apparently complicated, but as they display on the part of the con

trivers great ingenuity, and on that of those employed a marvellous dexterity, we shall strive to render our description easily understood. The pieces, No. 1 and 2, are now put with the piece No. 5, which has its outer and inner rims uppermost, and No. 3 being placed over them, its edges are tucked by means of a press into the channel formed between the two rims. In this state the piece that results from this combination, appears at No. 6, and also in section at No. 7, where the two folds of the linen thrust down to the bottom of the channel are seen, and the two edges of the rim stand up, with the linen for the back folded over the inside.

In No. 10, we have a section of the die, punch, and tube used in the next process, which is to tuck the two outside covers of the button between the rims of the metal piece, where the cover of the back has been already pressed in. A tube being forced down the hole in the die, to make the edges turn inwards, a hollow punch descends, and this presses the linen into the space just mentioned, as seen in section at No. 8.

As we stand and look at the female who conducts this operation, we cannot fail to be greatly astonished. A little girl lays the several pieces in order for her, which we first see loose, when with two turns of the press and a little sleight of hand, out comes the button with its edges all nicely tucked in, though not as yet sufficiently firm and strong for absolute wear. It has, therefore, to be despatched to one more press, furnished with a concave die, which squeezes the outer metal edge of the rim inwards, and brings the button to its perfect state, as seen at No. 9. Endless in their varieties of shape and beauty as such buttons are, they are all produced by slight modifications of the processes which have been now explained. Florentine buttons, and every variety of covered buttons, some fringed, some covered with glossy silk, are to be seen at Messrs. Elliott's manufactory, but were we to detail all the processes used, and to exhibit the skill displayed, we should tire both ourselves and our readers.

In conclusion we allude to

GLASS BUTTONS.

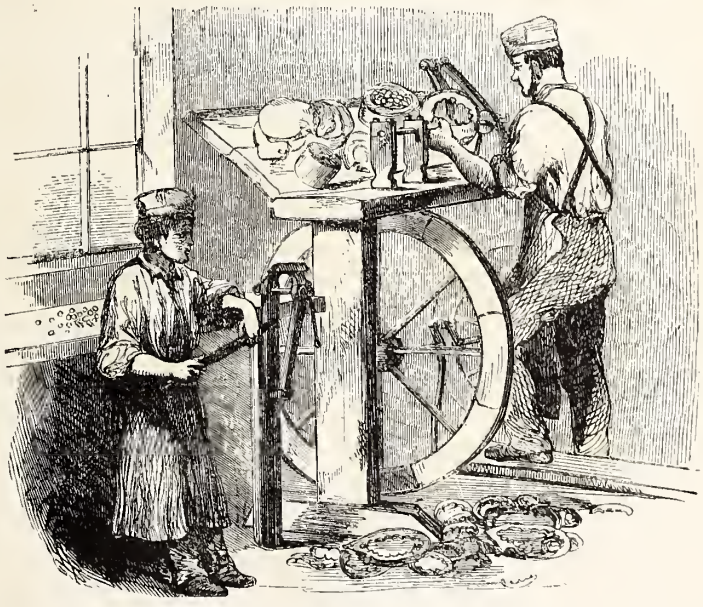
Glass is now largely used for the manufacture of buttons, especially for waistcoats. The process here is exceedingly simple. The shanks are put through the glass heads (which, of course, are made at a glass-house), as the body of the button may be termed, and which have been pierced for the purpose. A small machine, guided by a female, is then made to penetrate and expand the projecting wire from its parallel position into an open shank, and this secures the glass, and forms the button.

The course we have taken reminds us that Fashion is a fickle dame. She is neither to be controlled by the merchant, the manufacturer, nor the consumer. Her impulses and her path are equally capricious. Beauty, elegance, and utility, are alike welcomed and spurned by the expressions of her countenance and the movements of her hand. She smiles graciously on some article just produced by the combination of ingenuity, taste, and labour, and how much toil of hand and brain perhaps only a few can tell; and then it cannot be multiplied with sufficient rapidity to meet the demands of her eager and ardent votaries. But soon she looks less complacent, or absolutely frowns, and the once highly-prized product sinks rapidly into insignificance and contempt. Though brilliant as a skyrocket, it takes its place with the wreck of the expended firework.



GILDING FURNACE.

Some years ago, plain and fancy gilt buttons were "the style" for gentlemen's wear; but a short period has nearly annihilated this branch of manufactures. The effect of a change of fashion in such respects attracts but little attention. It may seem but of little moment to an individual whether there are on his coat eight buttons or six, yet the difference created by the adoption of the latter, if fashion renders it general, is just a deduction from the manufacture of twenty-five per cent., and may lead to a thousand or more persons being thrown out of employ. When Dr. Wilson, formerly Bishop of Sodor and Man, was one day being measured for a coat, he desired the tailor to put only a few buttons on it. "If every one did so," replied the tailor "the button-makers would be thrown out of work." "Say you so?" said the prelate; "then button it all over."



CUTTING OUT THE BLANKS FOR PEARL BUTTONS.

An effort was made about twelve months ago to direct the attention of distinguished persons to this subject. A body of operatives immediately connected with the manufacture of gilt and plated buttons, waited on Prince Albert, to request his acceptance of a selection of various beautiful specimens for his own wear, in the hope that it might lead to a revival of this elegant fashion. The prince gave them every encouragement, as did the Lord Mayor and other influential persons whom they afterwards visited. And the public had every opportunity of seeing a varied, artistic, and splendid array of buttons of this class, and of knowing what facilities were possessed for their production.

The button trade is more extensive than is commonly imagined. There are upwards of two thousand persons engaged in the pearl button trade in the town of Birmingham, and, perhaps, there are two hundred masters; whilst in the manufacture of cloth and metal buttons a larger amount of operatives is employed.

THE HISTORY OF GOLD.

Gold, the purest and most ductile of all the metals, has from the earliest ages been considered by all nations as the most precious. The first historical notice of it is found in the 2nd chapter of Genesis, in connexion with one of the rivers of Eden, which compassed the land of Havilah, where there was gold, "and the gold of that land is good." In the same book we read that Abraham's servant gave to Rebekah "a golden earing of half a shekel weight, and two braeelets for her hands of ten shekels weight of gold." Pharaoh presented to Joseph a chain of gold to be worn about the neck. In the sacred vessels, implements, and ornaments of the tabernacle and the temple, gold was largely employed. The sacred writers frequently use it as an illustration expressing the highest estimate of anything, by stating that it was "more precious than gold."

The golden districts mentioned in the Old Testament are Ophir, Sheba, Uphas, and Parvaim, the sites of which cannot now be ascertained.

It would seem that, in the days of Abraham, silver, not gold, was the current medium of exchange, as it is the standard coin at present on the continent; for we read that, when he bought the field of Machpelah from Ephron, he said, "I will give thee *money* for the field." "And Abraham weighed to Ephron the silver which he had named in the audience of the sons of Heth, four hundred shekels of silver, *current money with the merchant*" (Genesis xxiii. 16).

The scarcity, purity, and beauty of gold, its rich and brilliant colour, peculiar to itself among all the precious metals, and, above all, its wonderful ductility, admirably fitted it for the purposes of ornament and art. Fourcroy tells us that an ounce of gold is sufficient to gild a silver wire above 1,300 miles in length, and such is its tenacity, that a wire of 1-18th part of an inch thick will bear the weight of 500 pounds without breaking. A single grain of gold may be extended into a leaf of 56 square inches, and gold leaf can be reduced to the 300,000th part of an inch, and gilding to the ten-millionth part. These qualities, together with its durability and compactness, soon recommended gold to all nations as the best standard of value. It was easily conveyed from place to place, a small quantity would obtain a large supply of other articles, it was sure to find a market, and none would refuse to accept it in exchange. Among all people, and in all ages, the love of gold has been proverbial as the most absorbing and the most intensely exciting of all the passions that agitate the human soul. How truly do the reports from California and Australia correspond with the words of the Roman poet:—

> "Quid non mortalia pectora cogis,
> Auri sacra fames?"

More than two thousand years ago, Aristotle, who was the clearest expounder of those principles of political economy for which Locke and Adam Smith have got credit, stated that the chief advantage of the precious metals as money was, that they are less liable to fluctuation in value than other articles. According to Herodotus, the ancient kings of Egypt had mines which yielded six millions sterling per annum. In the working of those mines the greatest cruelties were practised. Criminals, and captives taken in war, with their innocent families, were condemned to work in them for life, naked and ill-fed, under the lash of barbarous task-masters, guarded by soldiers of various nations and different languages, who could communicate neither with the workers nor with one another.

Gold-mines, or, as they are now more properly called, "gold-fields," are pretty much alike in all parts of the world. The regions where mineral wealth abounds are not fertile plains which invite and reward the labours of the husbandman, nor are they generally picturesque in their outlines. They are lofty mountain-ranges; bold, wild, heath-covered hills, treeless, barren, and desolate. It is not clearly ascertained how gold is generated, but in its natural situation it belongs to the primary or igneous rocks—the oldest and most deep-seated of those *strata*, or layers, which form the crust of the earth,—and it seems to have been developed by the action of fire upon the elemental matter of the globe. In its native place, it would have remained for ever beyond reach of man, but the Creator, in infinite wisdom and goodness, foreseeing the wants of our race, has by internal convulsions, and stupendous up-heavings and depressions of the surface of the globe, given a slanting direction to all the strata, so that in many places the lowest of them crop out on the surface and become accessible to man. But for this arrangement, gold, silver, tin, iron, coals, and other products, now essential to society, would have been wholly beyond our reach. But in addition to this, the rocks where the gold veins are found have been rent asunder, cast upon the surface, subjected to the action of sea currents, mountain streams, rivers, torrents, dashed together by the fierce conflict of the elements and borne down into valleys, and thus the glittering ore has been obtruded upon the attention of man, who, in some districts, has been treading on it for ages without being aware of its presence.

Unlike lead, copper, iron, and most other metals, gold is not mixed with a stony and gaseous substance which needs melting. It requires only a mechanical agency to separate it from the rocks, chiefly quartz, with which it originally united; and then it is found among sand, gravel, and *débris*, in the form of grains, spangles, or small lumps, coming thus pure and ductile from the hand of the Creator. The gold and diamond mines of Brazil are chiefly in the beds of shallow streams, or in the superficial alluvial deposits of exhausted streams. The rich mines of the Ural and Altai mountains are excavations in auriferous sand or shingle, as open as an English gravel-pit. An experienced gold-finder in California says, that the place to look for gold is in the neighbourhood of distinct traces of volcanic action, or in small streams coming direct from hills of volcanic formation, or rivers fed by these streams. An abundance of quartz, or spar, is regarded as a sure indication of the presence of gold; and especially if trap-rock is found cropping up among this quartz, and perforated with streaks of it.

It is a curious fact that nearly all the mines yet known have been discovered by accident, while scientific inquirers have failed to detect the precious deposit. It is thus, as tradition records, that the Hartz mine was discovered in the tenth century by a hunter named Ramm, whose horse, tied to a tree, pawed up the ground, and revealed the hidden treasure. In Saxony lead and silver-mines were disclosed by the tracks of cart-wheels. The rich silver-mines of Potosi were found by pulling up a shrub. In the reign of Queen Anne, Captain Sheldrake, an Englishman, discovered gold in California, yet it remained unnoticed by generations of Indians, by the Jesuit fathers and by scientific men from the United States, till it was discovered in the formation of a mill-dam.

The gold regions already known are very extensive, and are not confined to any latitude. Even Europe has not been without its share of the precious metal. In ancient times Spain was peculiarly rich in gold and silver mines. The former, lying on the surface, or to be reached by slight excavations, was soon exhausted. So abundant was silver that some of the commonest implements of the inhabitants were composed of it. We are told that when the Phœnicians first visited the shores, they loaded their ships with it to the water's edge, made their commonest implements with it, and even forged it into anchors. These are believed to be the "ships of Tarshish" mentioned by the prophet Isaiah, and Spain the chief portion of the region known as the Tartessus of Phœnician commerce.

In the reign of Queen Elizabeth £100,000 worth of gold was found in Cornwall. James V. of Scotland had 300 labourers searching for it at 4d. a day. The gold first appeared in the sand of the Elban, a rivulet which joins the Clyde near its source, and a place where the soil was washed, long bore the name of *Gold Scour*. A specimen found on the Breadalbane estate, in Perthshire, weighing almost eight sovereigns, is preserved in one of the mineralogical cabinets of Edinburgh. In the year 1796 gold was discovered in the county Wicklow, in one of the streams which form the celebrated "Meeting of the Waters." A school master, accustomed to haunt this stream (Ballinavalley), was observed to grow rich—no one knew how; but the secret transpired in 1796, when a man crossing a brook found a piece weighing about half an ounce. Men, women, and children

from all the surrounding country soon crowded to the spot, and it was calculated that £10,000 worth of gold was discovered by them. The place was then occupied by troops and regular works commenced, but they were soon abandoned as unprofitable.

The present Russo-Asiatic mines in the Ural Mountains were worked in a very remote antiquity, of which fact decided evidence exists in pits and galleries containing relics and implements. These are supposed to be the mines of gold referred to by Herodotus, worked by the Arimaspes, and guarded by monsters and griffins, which Humboldt considers to be identical with the bones of elephants and other animals to be found in the steppes between the Ural and the Altai. The mining skill spent on all the gold that has ever existed in the world, is very little, the gold-finders, by a simple process, soon exhausting all that lies near the surface, and excavations of the auriferous rocks seldom repaying the expense. The Altai and Ural districts are exceptions. Works were recommenced there towards the middle of the last century, which have grown into the present town of Barnaul, the focal point of the Altai mines. An official return of the Russian government, of the amount of gold collected in the Ural and Altai, from 1829 to 1848 inclusive, gives a total of 16,420 poods; which, reckoning each pood at £2,000, is £32,840,000 for the whole period of twenty years, or an average of £1,642,000 per annum.

In Africa, the gold district of Bambouk extends over 10,000 square miles, and is found in alluvial beds of sand and pulverised emery; and also in quartz slate, which is pounded in large mortars. Other districts, bordering on the Ashantee country, have also rich gold-fields.

The Spaniards discovered the gold-mines of South America in 1492; from which time, till 1731, they imported into Europe enormous quantities of that metal, which had a most demoralising effect on the mother country, producing a taste for extravagant expenditure, habits of dissipation, neglect of agriculture and manufactures, the true sources of national wealth; and thus preparing the people for the social degradation and political thraldom that have so long cursed that fine country. The argosies that came freighted with gold from South America could hardly have failed to bring with them a blighting curse, on account of the cruelty practised in collecting the gold. By these cruelties entire populations were extinguished. "The natives of many of the West India islands were transported to Mexico to work the mines and perish. The Peruvians were largely devoted to a similar fate; and the first draughts of African negroes borne across the Atlantic were substitutes for the native races, as more competent to bear the drudgery which the rapacity of the European conqueror exacted. But retributive dispensations are not wanting in this dark and dismal story, which signalise the hand of an omnipotent and righteous Providence." Violent deaths befell many of the actual perpetrators of those crimes, while the countries to which the gold-freighted galleons came, are now the poorest nations in the civilised world.

The natives had been well acquainted with the use of the precious metals. The Mexicans not only gathered gold from the beds of rivers and superficial *débris*; but they also drew silver, lead, and tin, from the mines of Tasco, and copper from the mountains of Qacotollan, working veins in the solid rock, into which they opened extensive galleries. The Peruvians obtained the precious metals in the same manner, penetrating to the bowels of their mountains, not by sinking shafts, but by excavating small openings in their sides. On the Illimani mountain, Mr. Pentland found the face of a cliff literally honeycombed by innumerable opening for mining purposes. No wonder, then, that the treasures found in the palaces and temples of the Incas were enormous.

In the course of the last century the projecting point of a quartz vein in one of the highest mountains of Paraguay, was struck by lightning, shivering the mountain-side, and detaching a vast mass, which rolled into the valley and furnished an ample supply of gold. Sometimes it has been found in monster lumps. One of these obtained from the Ural mountains in 1826, weighed 22lb. In 1821 a mass, 8 or 9 inches long, by 4 or 5 broad, was met with in the United States, weighing 28lb. A still heavier one (32 lb.) had been found in the alluvium of the Island of Haiti in 1502. But in 1842, in the southern portion of the Urals, a mass was discovered weighing 96 lb. troy. It lay upon a stratum of diorite, at a depth of ten feet. It is preserved in the collection of the *Corps des Mines*, at St. Petersburg, and is valued at £4,000. In 1730 a piece weighing 60 lb. troy, was discovered near Le Paz, a town of Peru. But all previous prodigies of this kind have been thrown in the shade by a lump of 106 lb. weight found in Australia.

In 1845 Sir R. Murchison detected the presence of gold in this region; but it was reserved for Mr. Edward Hammond Hargraves, to call the attention of the world to the fact in February, 1850. Availing himself of his experience in California, he went on a "prospecting" tour, and discovered gold in twelve places, for which the governor gave him a grant of £500, and a situation worth £350 a year. In August, 1851, the weekly supply of gold coming into Melbourne was £13,000 worth, and according to the last accounts a good labourer at the diggings may clear £1,200 a year. As in modern society gold is the measure of the money, we may imagine the abrupt and violent revolution this will cause in society,—in a few days converting the foot into the head—the servant into the master, and *vice versâ*.

The valleys of the Sacramento and San Joaquin rivers in California are 500 miles long, and 50 broad, 25,000 square miles. Senora, the northern state of Mexico is said to be equally rich in golden sand, and other American regions are spoken of as likely to turn out extensive gold-fields. Science and experience, safer guides than the divining rods of the ancients, will soon detect these spoils of nature wherever they may be hid. But our own Queen commands gold regions four times the area of California, which have proved even more productive. It is calculated that the produce from Australia will not be less than seven or eight millions sterling annually.

A view of the supply of gold in past times may enable us to judge whether it will be greatly in excess in the future, allowing for the vastly increased demand for a metallic currency by the extension of commerce over the globe, and the demands of new patrons dealing largely in the productions of art, with numerous and busy cities in the wilderness of the western world. Humboldt calculates that America, from 1492 to 1521 produced £52,000 worth of gold annually, and £630,000 annually from 1521 to 1546. From the discovery of Potosi in 1545 to the end of the century, the supply of gold and silver from America was about £2,100,000 a year, while Europe produced only £150,000. During the 18th century, the yearly produce was £8,000,000. For twenty years previous to 1830 it was £5,000,000.

Mr. Wyld estimates the produce of all the mines in the world thus:—

	Gold.	Silver.	Total.
1800	„	„	£10,250,000
1840	£5,000,000	£6,750,000	£11,750,000
1848	£7,000,000	£6,750,000	£13,750,000
1850	£17,000,000	£7,500,000	£25,000,000
1851	£22,500,000	£7,500,000	£30,000,000

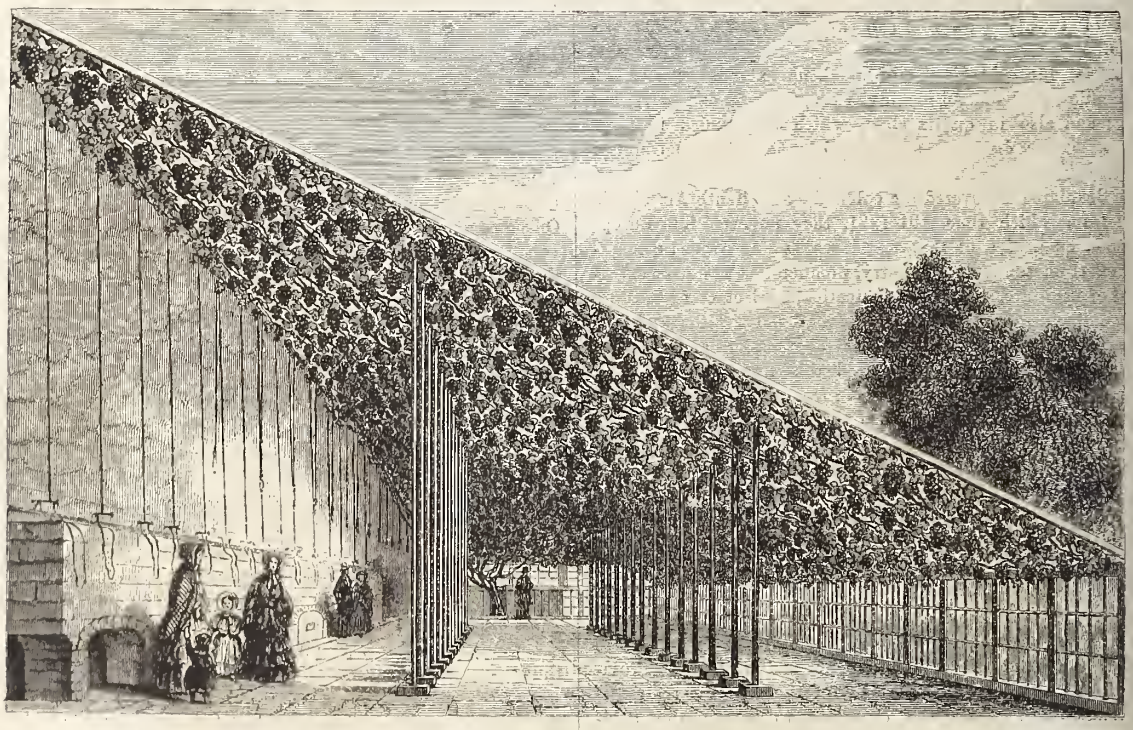
The American papers inform us that, according to the Custom-house books, the produce of the Californian mines in 1850 was £13,717,000, and for 1851 it was estimated at £15,000,000. Mr. M'Culloch reckons the annual consumption of gold by Great Britain, America, and the Colonies, for all purposes of art, ornament, and waste of coin at something over nine millions sterling. But the supply in 1851 was £30,000,000. This gives a surplus of £20,000,000—a supply treble the present demand: a fact which must have a serious effect on the value of funded property, the standard currency, and the nominal prices of other articles. The supply is not likely to decline for many years. The fever of gold-seeking will, no doubt, abate, the pursuit will assume a more systematic form, directed by science and controlled by government. Machinery will succeed manual labour, quicksilver will be made generally available for collecting the particles of gold. Steady remunerative returns to all, will succeed to the intoxicating fortunes of the few, and the bitter disappointment of the many.

The wild appearance, and disorderly habits, the fearful excitement and self-sacrifice that now prevail will be followed by a normal and healthy state of things. Business, now deserted, will resume its usual sway. A vast population of the most energetic members of the human family will be allured from the over-crowded cities of the old world, by this mightiest lode that attracts the human heart,—and these will be compelled, ultimately, to fall back upon the arts of agriculture and commerce, developing the resources of boundless tracts of fertile lands,—raising products which give even to gold all its value, and laying the foundations of great nations in the antipodes. Thus the love of money, the root of so much evil, will now become the occasion of immense good to the human race, so that it would seem as if Providence had reserved the discovery of these gold-mines till the great northern race should be prepared to people the southern hemisphere, and carry thither its Christianity and its civilisation.

We have scarcely noticed gold as *coin* and *currency*,—reserving this view of the subject for another article on the *History of Money*.

THE VINE AT HAMPTON COURT.

This vine, of the black Hamburgh species, is said to be the largest in Europe, and is upwards of 110 feet in length, with a stem nearly 30 inches in circumference, at three feet from the ground. It was planted in 1709. In one season it produced no less than two thousand two hundred and seventy-two bunches, weighing 18 ewt. There have been many opinions on the possibility of growing vines in England, in the open air, although many years ago the art of hothouse cultivation was perfected. In a pamphlet published by Mr. Hoare, some years ago, on the "Cultivation of the Grape-vine," many very valid reasons are brought forward in favour of the cultivation of the grape-vine in the warmer parts of England, and of all these, the strongest is, that Mr. Hoare gives an account of some very successful experiments conducted by himself. As far as this goes, we cannot see any reason why extensive vineyards should not be planted in the warm, sunny, slopes of southern England, where a supply of grapes might be grown sufficient to stock the London or provincial markets, without having recourse to the assistance of the continent. The extreme uncertainty of our climate, however, is the great barrier to the introduction of the vine into this country upon an extensive scale. The yield of grapes in particular years might be productive, but when we remember how sudden the changes of temperature are in England, and how frequently our summers are cold and wet, we may safely conclude that the average would fall much below that of continental vineyards, or the cultivation would entail so much expense, that our vine-growers could only hope to supply the tables of the wealthy. The south of England will, of course, always continue to supply grapes of good quality, but never so good as to exclude those of France and Germany.

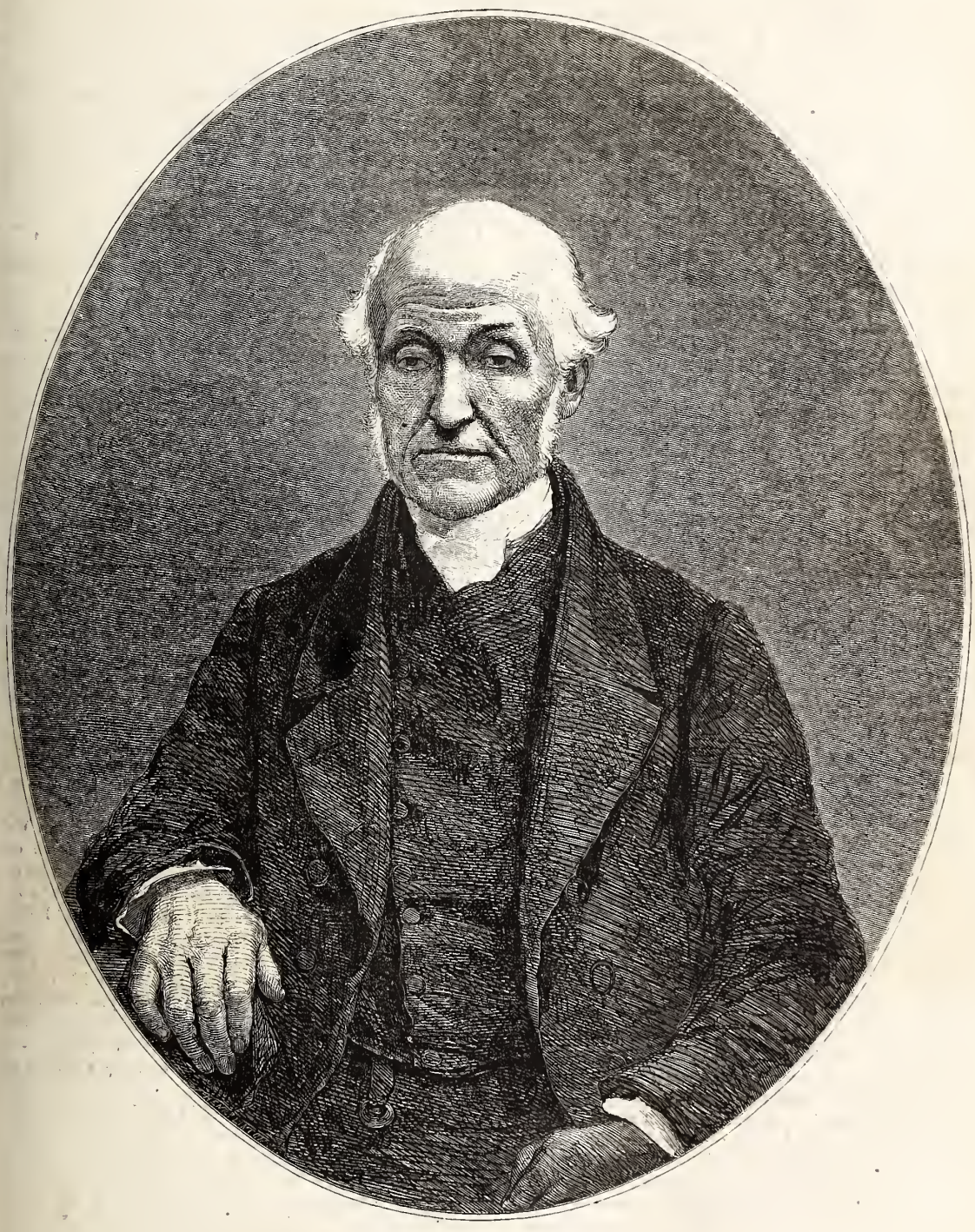


THE VINERY.

The spots where the vine flourishes, and where vineyards are kept up, are said to depend for their productiveness more on the temperature of spring and autumn than on that of summer and winter; and this explains many seeming anomalies in the location of vineyards. The vine grows best in a soil where few other shrubs or plants would thrive; such as a deep, loose, rocky soil.

On the steep slopes of hills toward the south, and sheltered from the north-east, the grapes attain the greatest maturity, and the vintage is most certain. The culture of the vine is, perhaps, one of the most anxious and fatiguing which field labour presents; so numerous are the demands on the time and attention of the grower. It will bear any degree of heat, but not heat combined with moisture; hence a wet European season is usually a bad wine season. If it requires so much care and unremitting attention out of doors, even in a favourable climate, how much more difficult must it be to cultivate it in a hothouse, where every sudden variation of temperature may be fatal to it! The Hampton Court Vine may not only be regarded as the largest vine, but also as one of the most remarkable hothouse productions in Europe.

THOMAS WRIGHT, OF MANCHESTER.



THE PRISONER'S FRIEND.

PERFECT machinery, boundless capital, unwearying and exhaustless enterprise, strong heads and stout hearts, for these things Manchester is renowned in every part of the world. Few, too, are there who do not know that the capital of the cotton manufacture is distinguished by the names of Henry and Dalton in Chemistry, Percival in medicine, and Liversege in painting. But of Thomas Wright, till very recently, who had heard? Yet while Henry was reaping the golden rewards of his discoveries, and Dalton, after a long life of secluded and unhonoured study, was wondering at the repute into which he had suddenly been raised, and while the din and the whir of those huge mills, each with its teeming population, was grinding gold-dust and creating social power, and wearing down human life, quietly and unseen was Thomas Wright performing a work greater than any other work done and accomplished in that vast workshop, and acquiring claims to esteem and reverence all the greater because unrecognised and unobtruded. And while, moreover, philosophers were speculating about principles of secondary punishments, and parliaments were legislating to improve our prison discipline, one humble individual, unbefriended and alone, was solving those

problems, and realising that contemplated good, solely under the promptings of a benevolent heart and the guidance of a wise and thoughtful head.

Thomas Wright has good blood in his veins. He is a Saxon; he is a Saxon of the Scottish cast. To Scotland we on this side the Tweed are much indebted. To Scotland Manchester is much indebted; many of its most successful and opulent merchants are of Scottish origin. Scotland bestowed on the world a Burns. The world has now to thank Scotland for a Wright. Thomas Wright was, in the year 1789, born in Haddington, near Edinburgh, of poor but industrious parents, whose character, a rich dower, was their all. The father was a cattle-dealer. At the age of seven the son was placed under the care of a maternal aunt, who resided in Manchester. Inheriting the strong and deep religious feelings of Scotch Presbyterianism, and having a moral tone rather firm than amiable, she, as a hearer of Dr. Barnes, an English Presbyterian preacher of some repute, began the training of her nephew with the indirect assistance of that magniloquent Gamaliel. The lad, however, did not feel himself at home. The discipline of a Methodist Sunday-school was tried with little better effect. Yet in that Sunday-school did Thomas Wright receive his only education, except that which he gave himself. Not much, however, did he at first trouble his head with books. There was a spice of wildness in the youth. He had a will of his own, and that will led him to neither school nor chapel. Roystering companions and rough games were the young man's delight, and from coarseness he was led to something worse. Meanwhile, there, at home, in her humble seclusion, was his good religious aunt pining over the boy's self-will and vagrancy, and praying night and morn that he might turn ere he became a prodigal. Turn he did. He owed the change to the ministry of that pure-minded and loving man, the late William Roby. Henceforth Thomas Wright acted as well as felt like a Christian. Never had he been depraved. Conscience had always been alive, sometimes painfully alive; his kindness, too, had always been abundant; and now that a deep religious sentiment added its sanctions and its impulses to his previous moral yearnings, he became as consistent as he was earnest and devoted in what he regarded as his duty. While these moral and religious changes were proceeding, Thomas Wright had been serving his time in the foundry of the Messrs. Ormerod, in Minshull-street, London-road, Manchester, in which he spent all the labouring energies of his life, and which, except on a few rare holidays, he never left till Saturday, April 24th. There from his five shillings a week wages which he received in the first part of his apprenticeship, he, by dint of hard labour, spotless honesty, and ever-growing usefulness, raised himself until he received the weekly sum of three pounds ten shillings. Entering the foundry at fifteen, he quitted it in his sixty-third year, having been a foreman for more than half the period. The religious influence to which Mr. Wright now gladly owned allegiance, produced the best effect on his pecuniary resources and his domestic life. Yet it was a small sum the worthy man gained week by week; a very small sum, if you consider what the money had to do. One thing it did, it brought up nineteen children. Yes, on an income which did not average a hundred a year, Mr. Wright married twice, and fed, clothed, and educated nineteen children. This may seem an impossibility in Belgravia, but it was done and well done in the heart of Manchester. We say "well done," not that these children were taught either Parisian French or Parisian manners, but because they were made good wives and good husbands; and because, therefore, they have been and are centres of a high and durable domestic influence—the best of all England's treasures. But this small income did more. And here comes into prominence that which may make the cheek blush in many an opulent home. So far as money could accomplish such a result, this sum ministered to the necessities, and relieved the troubles, and healed the wounds, of the prisoner, the outcast, and the pauper. Early in his home-life did Mr. Wright begin the practice of apportioning his income among the objects at which he aimed. At the end of the week, after due deliberation made, so much of the common stock was allotted for food, so much for clothing, so much for rent, so much for the schoolmaster, and so much for the needy. The lines of the distribution were sternly observed. If the belly or the back pleaded against the head or the heart, the answer was "thy allotment must do, no trenching on other's rights can be permitted."

The benevolence with which nature has so largely furnished Mr. Wright, could not, in the natural development of his character, fail to engage him in some work of charity. If love is in a man, it will find or make for itself some outlet. What is called an accident led Mr. Wright to feel a special interest in prisoners and convicts. One day, while discharging his duties in the foundry, he was addressed by a young man of prepossessing appearance and manners, who asked him for employment. "I know your countenance;—is it possible? what! returned?" "Yes, Mr. Wright, returned; and not, I hope, the worse for my absence, as I think you will learn, if you will give me a trial." "That is not so easy; however, I should like to aid you, and if you are discreet, no one here shall know your history." "Thank you heartily for the chance of recovering my position; I know that a returned convict would be despised and scorned, if not hated, so he sure I shall keep my own counsel." The experiment proved eminently successful. Here was a beginning, and here was encouragement. But what took Mr. Wright to the gaol? A sad place is that gaol; sad and dreary is its aspect; painful and threatening there in the midst of civilisation and opulence is that "Bailey," as it is commonly called by its inmates. Very saddening as you pass is the appearance of its dark, frowning, huge walls and edifices, where hope is so rare a visitor, where joy is almost unknown, and where grief and tears have taken up their abode; very saddening is it to think that of the thousands that have gone through that massive portal, over which the emblematic chain offers an insult to misfortune and a derision to crime, only a very small number,—a very small number were bent on errands of mercy, and would do anything to abate the mass of wretchedness that festered within. Very saddening and grievous is the idea which that gloomy nest of cells and dungeons calls up when it makes one ask the question, "Is then this terrible cost a necessary cost? must so much be paid for our civilisation?" The question receives a negative answer in our mind. We say, "No! that cost is not necessary; we say that society by its neglects goes far to create the evils which it punishes, and that it punishes when it ought to renew and reform."

How this godlike work may be accomplished Mr. Wright has well shown, having proved that there is no depth out of which the genial warmth of Christian love may not more or less raise a fellow-man. Individual excellence is the great remedial power for the woes and the guilt of the prison. Individual excellence alone can revive and restore that almost extinct nature. Head to head, heart to heart, hand in hand; your eye beaming kindly on his, your words thrilling in his heart, your prayers mingling with his prayers; thus, yeu two alone, in strict privacy, in close and solemn communion,—thus, and thus only, can you hope to rescue your brother from perdition, and make him to be once more a man, instead of being a convict and a transport.

It was by degrees that Mr. Wright was led to make these discoveries in his own experience. One of "the hands" in the foundry invited him to pay a visit to the New Bailey. "My father is a turnkey there; he has heard me speak of your kindness, he says kindness is wanted in the Bailey, and he hopes you will go and see him." Mr. Wright went. He went with a high purpose; he went to minister to the guilty. At first he was regarded with distrust, and experienced the coldness of official reserve. But he was as free from impetuosity as he was full of zeal. Calmly he went about his work, losing no opportunity of entering the cell and soothing its inmate, until governor and chaplain began to discover, first, that there was no harm in the man; secondly, that he had good qualities, and at last, that he was invaluable as an aid in all their higher desires and efforts. The result was, that he became a regular member of the establishment, an unpaid officer, a part of the machinery, a part so essential that without it the engine could scarcely work, or work most gratingly to the ear and distressingly to the heart, as it did for a time, when there was no oil of spontaneous

love to ease its movements. All special, all difficult cases were consigned to Mr. Wright's care. The heart that the chaplain could not soften; the heart that the chaplain could not comfort; the boy or the girl that no one else could look after when the term of punishment was ended; claims for a special investigation of alleged guilt, made by condemned innocence; claims for a commutation of sentence; claims for shortening of the time of suffering; claims for remission of the entire penalty—all came, as naturally, into Mr. Wright's hands, and were treated by him in a spirit in which mercy rejoiced over justice, and yet in which justice was not disregarded. In a word, all the remedial and corrective workings of the law and the prison centered in him. He was the moral physician of the New Bailey. If there entered its walls a child who had received in any degree a superior training, and who would be grossly injured by being placed in company with ordinary prisoners, Mr. Wright interposed to procure for her a separate apartment and gentler treatment. When there came from one of the higher strata, a young man who had erred rather through the force of thoughtless passion than depraved principle, he found in Mr. Wright a friend who had an eye for good qualities, while he pitied and blamed bad ones, and who by constant attentions and judicious conversation, rather than rebuke or direct precept, after winning the prisoner's heart, lifted him up to hope and some degree of self-respect, and prepared the way for his eventual recovery. How soft and balmy were the words he spoke in the ears of aged offenders, and how did their heart sink and melt under their power. Even the incorrigible ones of middle life; men whose hearts were cankered, all whose feelings and impulses were perverted, and all whose wishes and designs were brutal and predacious; felt subdued and humbled before him, and yet desired the presence of a power which made them uneasy, and, for a moment, half-repentant. The worst cases had the largest share of Mr. Wright's attention. Murderers destined for the gallows he sedulously watched over. Safely may it be said, that not one of them but was bettered by his pious and loving cares. The last night of their earthly existence he was always with them to the latest moment that the prison regulations allowed. On the scaffold too, was their kind friend sure to appear. When condemned by the world, when deserted by companions, when disowned by relatives, in the hour of fear, in the hour of convulsive agony, in the hour of gloomiest death, they found in Thomas Wright sympathy, solace, strength. Nor was the beauty of his ministry marred by self-exaltation, nor its value and efficiency diminished by fanatical fervours or morbid sensibilities. Thomas Wright is a strong as well as a kind man; he is distinguished for good sense as well as good feeling; and without knowing it, he has in him—acquired in the school of life—a world of philosophy. Always wise, prudent, and kind, he can, when needful, reprove with firmness, and condemn without qualification; but so strong is the predominance of love in his character, that kindness ever mingles with his rebuke, and pity is ever in the ascendant; and to their blended influence his severe words owe very much of their power.

Without the prison Mr. Wright has been perhaps more useful. A great gulf divides prison life from the life of our homes. More the pity. But the gulf exists; it is a wide gulf; it is a deep gulf; darkness and ruin are in it; and therein have thousands, tens of thousands fallen to unrelieved darkness and irretrievable ruin. What mistress of a house will take as a servant a young woman fresh from the corruptions of a prison? What shopkeeper will receive into his service a boy whose back bears the scars of prison discipline? Where is the warehouse into which a man may hope to step from the treadmill? Nay, among their equals, persons of their own rank, "prison-birds" are scorned and scouted. Not one resting-place offers for the sole of their foot. Not one honest means for procuring a bit of bread. Starvation or pilfering is the sole practical alternative. A precarious life of contempt in society, or plenty and comparative ease in the prison; between the two few can hesitate long, and certainly the bulk of prisoners in their ignorance and moral infirmity are not likely to hesitate at all. Theft is preferred to inanition, and again the prison gates are closed on the pitiable victim. Pitiable? Yes, truly pitiable, uneducated, untaught, uncared for as is cast out and cast away, that boy has instincts strong as your own, feels the sickness of extreme hunger, shivers in the cold of night, is desolate at heart as he wanders through your crowded streets a despised stranger, deserves your commiseration if, under his complicated woes, he puts out his trembling hand and seizes a loaf. You will catch him, we know, and you will incarcerate him; and in so doing you will make him worse than he is, make his lot darker until it becomes hopeless, and thus you will punish him, you will give him what you call "his deserts;" nevertheless he is pitiable, and the more pitiable is he because the hand that ought to aid him to rise presses him down until it has crushed him. The gulf of which we have spoken Mr. Wright has attempted to bridge over. In scores of instances his efforts have been successful. Many a child has he restored to its grateful parents; many a youth has he enabled to re-enter the social paths from which he had been driven by guilt; many a young woman has he replaced in domestic service; many a transport to whom on his return England would have given no home, has he established in comfort and honest independence on his native soil. The task was by no means easy. It required money, it required time, it required energy, it required prudence, above all it required character, and the confidence which high character inspires. All these somehow or other, we scarcely know how, Mr. Wright supplied. And yet he toiled from five in the morning till six at night. What an exemplification of the maxim, "where there's a will there's a way!" Every evening was employed in the work; every Sunday was employed in the work; a minute now and then in the course of the day might be spared for the work; and "short time" might be imposed on the coffee-cup and the knife and fork, and the bed might be made to pay a large contribution. Yet how were these fragments wrought into the whole of this sublime benevolence? The actor himself could but very imperfectly answer the question. However, the work has been done, and the work is now proceeding.

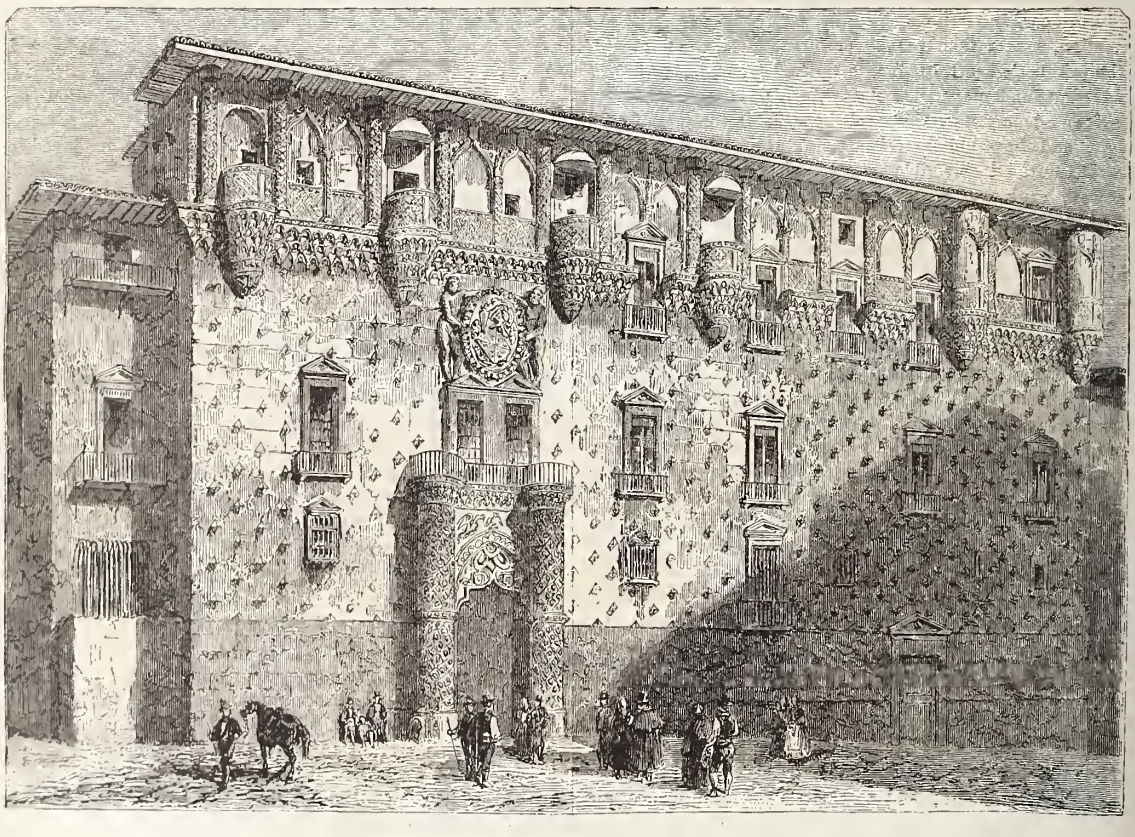
Without aid its accomplishment would have been next to impossible. The aid, when the amount of the work is considered, was not great. For years, many years, Mr. Wright laboured in obscurity, uncheered and unassisted. But there came to his aid a circle, of which the authoress of "Mary Barton" may be accounted the centre, that appreciated Mr. Wright's labours, extended to him sympathy, gave him openings into social life for his outcasts, and with a liberal hand supplied the deficiencies of his own scanty treasury. Assisted, without being patronised by the ladies of whom chiefly this circle consists, Mr. Wright found ready entrance into the mansions of the rich, the cabinets of ministers, the reports of prison inspectors; into poor-houses, and convict-ships, and penitentiaries. In a word, he became a celebrity, and found his means of usefulness multiplied around him. But how could he occupy this large, and to him inviting, sphere There he was still in the foundry in Minshull-street, too conscientious a servant to allow even benevolence to detract a hair's weight from his daily and hourly service! Besides, he felt the presence of all these claims on his health and vigour. Not that Thomas Wright is a debilitated man. Arrived at the age of sixty-three, he is on the whole hale and vigorous, and has strength to perform a very large amount of additional good for his kind. Still the duties of the foundry and the duties of the prison were too heavy as well as incompatible. So thought his friends. Accordingly they came forward with that determination and that liberality which are characteristic of Manchester. The consequence is, that Thomas Wright, who has given freedom of body and freedom of mind to so many, is now free himself—free to yield to his own noble impulses, free to achieve a larger measure of good than as yet he has been able to put his hand to. His career is now only about to begin. At present he is "the Manchester Philauthropist;" ere long he will be "the Philanthropist of England." Nor will his benign influence be confined within our shores. With deep pleasure do we anticipate the amplest and the best results. At this moment Thomas Wright is setting out on a tour of two thousand miles; a tour of benevolence in which he will visit the needy, the captive, the convict, the lowly, and the great; doing in all cases whatever he can to abate the ills and augment the good of the world. Scarcely need we ask for him co-operation. His first course eloquently pleads his claims.

Wherever he finds an auditor he is sure to make a friend. But let the opulent remember that still—even should the solicited pension be granted—his pecuniary resources were inconsiderable when measured against the demands to which they are liable and will be liable.

Our portrait presents a faithful likeness of his countenance when in repose. If the traces of more years than he actually numbers are there; if the face is shadowed by a pensiveness inclining to melancholy, reflect on the character of his benevolent ministry, and you will learn the cause. But in that finely-carved compact dome, where reverence and love are so markedly prominent, and in the pious and gentle goodness of that countenance, you behold characteristics, proofs, and consequences of a practical benevolence the most earnest, gentle, self-denying, and constant. The man however can be fully seen and known only in conversation, when that thoughtful face is lighted up with the purest and brightest radiations of his own affectionate heart. But, no! really to know Mr. Wright you must behold him in his labours. In truth we believe that he is completely known, and can be completely known by none but those to whom he ministers. Reader, "go thou and do likewise."

THE PALACE OF GUADALAJARA.

The town of Guadalajara is situated on the left bank of the Henares, at about twenty-five miles distance from Madrid. Some Roman remains, consisting of an old bridge, a few crumbling monuments, and some inscriptions, prove that at one time they had a station at this spot, but the known history of the town is not carried farther back than the conquest by the Arabs; by them it was called *Guadalhiccharo*, or *Guadalarriaca*, and, commemorative of their dominion, the remains of some walls and two mosques are shown to the traveller, one is used as a church, and is dedicated to St. Michael, and the other now forms the town prison.



FRONT OF THE PALACE OF GUADALAJARA.

Towards the commencement of the last century, Guadalajara reached a degree of opulence and activity unknown to the rest of Castile. Cardinal Alberini, struck by the fact that the wool which Spain produced in such abundance, and of such superior quality, should leave the kingdom at a low price, and return again at a higher cost, under the shape of cloths and other fabrics, determined to free Spain from this dependence upon foreign manufacturers. He invited several skilful Flemish manufacturers to settle in Spain, and planted them, with a small colony of workmen, in the castle of Ateca, a dependence of Aranjues. During the hot season the climate here is extremely unhealthy; and it was not long before these workmen, who were accustomed to a mild climate, were attacked by disease. In 1719, one year after their arrival in Spain, it was judged necessary to change their residence, and Guadalajara was chosen, for its healthy climate. Very large and flourishing establishments soon arose in this town. A large market was at once opened to their manufactories. Spain at that time monopolised the importation of merchandise into the whole of its American possessions, and in a short space of time the fabrics produced by their manufactories not only rivalled the exports of the European continent, but even supplied the markets at a price considerably below that which the products of other countries were sold for.

In 1757 the Spanish government ceded these factories to the Incorporated Cloth Merchants of Madrid for a period of ten years, with many privileges; but either through incapacity, or mismanagement, this undertaking was disastrous. The company, at the end of the ten years, declined to renew the contract, on account of the enormous losses. It was in vain that the government offered contracts to other persons; no one would undertake them; and it was compelled to take the manufactures again into its own hands. Immense sums of money were swallowed up by this attempt. During the time when the physical and

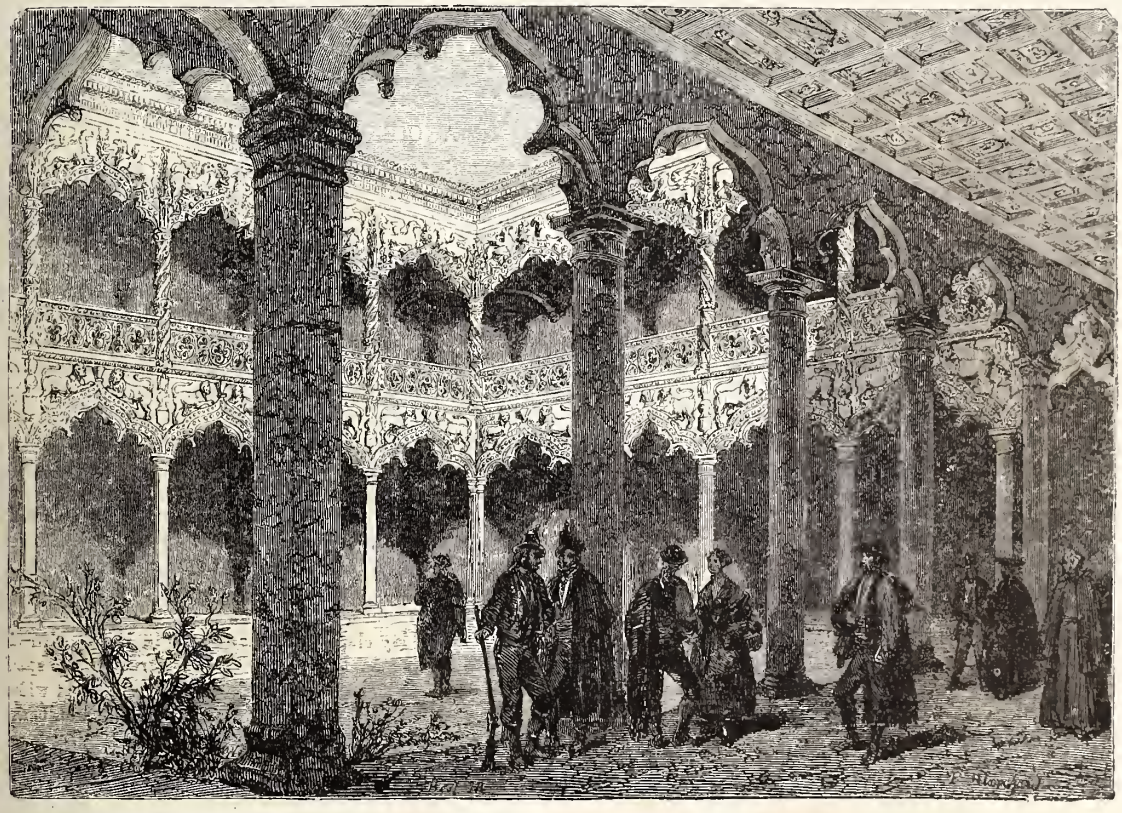
chemical sciences were making rapid progress in the rest of manufacturing Europe, while new processes were being applied by weavers and dyers, the factory at Guadalajara remained perfectly stationary; the markets of the continent, even those of America, were closed against it, and the exports almost ceased. The invasion of 1808, however, put the finishing-stroke to its ruin. In 1826 a few enterprising speculators attempted to resuscitate the manufactory, but were entirely ruined, and since that time this once flourishing trade has been entirely abandoned at Guadalajara.

The only strangers who now visit Guadalajara are a few stray travellers or antiquaries, who, after having visited the church of San Ildefonso, and the tomb of Cardinal Misneros, both masterpieces of the sixteenth century, feel a desire to behold the celebrated palace of the Dukes of Infantado.

According to some authorities, this palace was built by Cardinal Mendoza, of the House of Infantado, who was born and died at Guadalajara. The general style of the edifice appears to favour this opinion. The façade is rather extensive, and in the manner of decoration we recognise traces of the feudal age. The balconies in the upper story, and the pillars on each side of the gateway, are evidently derived from the turrets and entrance towers of feudal castles. These are the precious characteristics of a transition state; and this palace of Guadalajara is one of the most perfect specimens. From some cause, which has never been satisfactorily explained, the gateway, as in many other palaces of the Spanish nobility, is not in the centre, but placed about two-thirds down the façade. Some writers have attempted to explain this as arising from a decree in feudal times, making the right of a centre gateway a royal privilege. This, however, is not supported by any reliable authority.

The interior of the palace has undergone great alterations. The habits of the last century could not agree with the distribution of apartments in the past ages, and casements of a comparatively modern style break the façade and the simplicity of the building. The joints of the stones are marked by diamond-shaped points. In the interior the court has also been subjected to the same description of alterations; the frigid Tuscan pillars produce a strange effect in contrast to the network of tracery above them. Besides this, one whole side of the upper gallery has been built in to form apartments for the household domestics.

Several rooms in this palace are ornamented with illuminated ceilings; others are divided into squares which are either gilt or brilliantly painted; the ground floor is inlaid with mosaic work in porcelain. Enormous chimneys, ancient furniture, remains of antique armour, are strangely contrasted with the modern decoration of some portions, and the silence which fills the palace. The most remarkable portion of this remarkable edifice is the so-called Gallery of Lineages, from the fact that the paintings with which it is ornamented represent the escutcheons of the principal families of Spain.* It extends along the whole of one side, but is not of a width proportionate to its length. The colossal chimney which occupies one of its extremities is a masterpiece of carving. The ceiling combines in a most happy manner the florid beauties of Saracenic art with the purer taste of a later age. That which gave the distinguishing feature to this gallery, was the profusion of gilding displayed on its walls, and an ancient writer not inaptly calls it, "*una oscua de oro*" (a brazier of gold). At the present time this gallery is used as a lumber-room, and many of its richest emblazonments have faded before the attacks of dust and cobwebs.



COURT-YARD OF THE PALACE OF GUADALAJARA.

It is said that Francis I., during his involuntary journey to Madrid, after the battle of Pavia, halted at the castle of Guadalajara, when the Duke of Infantado treated him with the utmost courtesy and magnificence. The duke was unable to attend the king during his visit to the Gallery of Lineages, owing to an attack of the gout, but instructed the Count de Tendilla, and the Marquis de Mondejar to do the honours to his royal guest and prisoner. A poet, Don Alonzo-Nunez de Castro, who was present, has rhythmically described this visit, and gives an

* A similar gallery is to be seen at the Castle of Cintra, near Lisbon.

enumeration of the various escutcheons which at that time decorated the walls. This poem, though insignificant as a literary composition, is yet of great value in an historical point of view.

The arms of Guadalajara represent a horseman armed cap-à-pie, and are said to perpetuate the memory of Alvar-Fanez de Minaya the nephew, lieutenant, and companion in arms of *Rodrigues de Bivar*, the celebrated *Cid Campeador!* Alvar fought valiantly with the Cid in the seventy-nine battles which the latter was engaged in with the Saracens, and freed Guadalajara from the yoke of the infidels.

SALT.

The chief use of condiments to food, or of those additions which impart flavour without increasing the nutritive qualities of it, is to stimulate digestion by pleasing the palate; and, provided the substance thus employed be not positively unwholesome, or do not stimulate the stomach too strongly, the use of condiments is decidedly beneficial. There is one condiment, however, which must possess qualities of a far higher kind, and must be absolutely necessary to render food perfectly adapted to digestion and assimilation, if we may judge by the universal use of it by all nations, by the craving felt for it by inferior animals, as well as by man, and by the diseases produced by absolute privation from it,—of course we mean salt.

The first remarkable circumstance attending salt is, that, with the exception of water, it is the only *mineral* substance that is consumed with, or for food, by animals. This fact would render it probable, if not certain, that its action on the constitution is entirely chemical, and not nutritive—that is, that salt either operates some change in the organic matter taken into the stomach, which causes it to be more readily and more completely converted into chyme, or else that, by mixing with the juices secreted from the organs of digestion, it increases their energy, but that the salt itself, or its constituent elements, is finally ejected, and does not permanently remain in the system.

Salt is hardly less important to man in an economic point of view. Its effects in retarding the putrefactive fermentation, or decomposition, of animal and vegetable matter, enable us to preserve food of many kinds for a much longer period than we otherwise could do.

Flesh is salted either by rubbing the salt dry into the meat, or by soaking it in *brine*, which is water saturated with salt dissolved in it. But this mode of application is limited to small pieces, and is not effectual for flesh which is to be kept for a long time.

A small proportion of saltpetre (nitrate of potash) is added to brine. Experience, we presume, has shown that the action of the liquid is improved by this addition; but we do not know in what way this improvement is effected.

Beef and pork, for taking to sea, or for winter store, must be salted by placing the pieces alternately with layers of dry salt, in barrels or chests, and keeping it in this state for a month or more, and even repeating the operation twice or thrice, if the meat is intended for ships about to proceed on distant voyages.

Bacon, hams of beef, mutton, or bears,—tongues of oxen and rein-deer, &c., after being salted in this manner, are *smoked* or *dried* by being hung up in the chimneys of fireplaces in which wood alone is burnt; and this wood must not be that of fir, or other trees of that order, because the meat would acquire a flavour of turpentine from the smoke of such wood.

Fish is preserved by salting, in such quantities as to constitute an important article of commerce among most civilised maritime nations.

It should be remarked, that all animal matter is rendered less digestible by salting, and the consequent drying. The fibre is made more tough, and the quantity of salt incorporated with the meat is greater than is beneficial to the constitution when taken into the stomach. Hence persons, like seamen, who feed much on salted provisions, are liable to scorbutic complaints, generally denominated sea-scurvy—the best remedy against which consists in fresh vegetable food, and especially in the use of fresh lemon-juice, or citric acid.

Salt is derived from two sources: extensive strata of this mineral, in some cases forming whole mountains, exist in many parts of the globe. These masses are excavated by means of mines, in the usual mode, and the produce is termed *rock-salt*.

There are salt-mines in France, Hungary, Poland, Spain, and at Northwich, in Cheshire. That at Wieliczka has been described by many travellers, as remarkable for its depth and extent, and for the curious chambers, stables, chapel, &c., into which the excavations have been converted, the furniture and fitting up being formed of salt. But that at Salzburg is still more interesting, from the mode employed in working it. Fresh water is brought by artificial channels into small chambers, excavated in the salt-rock; the water dissolves the salt of the sides, floor, and roof of this, till the space is enlarged as much as can be safely permitted, without risk of the roof falling in from the weight of the superincumbent mountains. Some of these chambers are immediately over one another, a sufficient thickness of rock being left between them to bear the weight of the water when let into the upper one. In such cases, the floor of the upper cavity is covered over with well-tempered clay, carefully spread over it, in order to prevent the liquid from dissolving the floor. When the water becomes saturated with salt, it is drawn off, and carried out of the mine by means of wooden troughs; the salt is obtained from the liquid by evaporation and boiling.

ANCIENT AND MODERN BRIDGES.

In the early ages of the world, bridges were unknown as a means of transit over rivers, and accordingly we not only find frequent mention of "fords" made in the bible, but also in many ancient historical and geographical works the same word occurs. The earliest structures of the kind were rude and simple, and we may form an idea of their appearance and stability from the flying bamboo bridges of the Indians, and the unpicturesque but strong wooden lintels which were stretched from bank to bank in the Orkneys and Hebrides. After these, piers or posts were fixed in the bed of the river, connected at the top by stone or wooden lintels; but this contracted the passage of the waters, and a strong current not unfrequently swept away every vestige of the rude structure, which had been the only mode of communication between countries lying on opposite sides.

Experience of the defects of an old system lead people to desire a new one, and accordingly without any great stretch of inventive faculty, the arch of the temple was transferred to the buttresses of the bridge, which were no longer placed in the channel of the river but on its banks.

The Chinese lay claim to high antiquity in the construction arched bridges. At Fou-tcheon there is a remarkable specimen of this description 1200 feet long, and about 36 feet wide. It had formerly a regular street built upon, with shores on both sides of the way. Another at Suen-tcheon-fou is 2,500 feet long, and 20 feet wide, and has 252 stone piers, on which is laid a roadway of huge stone blocks.

The Romans also were distinguished for many excellent specimens of bridge-building in various parts of the east and in Europe; but we learn from history, that others beside the Chinese and Romans were acquainted with this species of architecture many centuries ago. The stupendous wall of Babylon crossed the mighty river Euphrates on a series of arches, and the river which rolled its dark waters through the city of Nineveh was spanned by a fortified arch. Of all these bridges of antiquity, however, the most magnificent was that built by the Roman emperor Trajan across the Danube. It is described as consisting of twenty piers of squared stone, each of them rising 120 feet above the foundations, 60 feet in width, with a water-way between every two of 170 feet, which was consequently the span of the arch, so that the whole length of the bridge was nearly 1,500 yards. It was a noble structure, and in its ruins, which exist to this day, may be traced the bold ambitious character of its projectors, and the weak timorous mind of its destroyer, Adrian, who had it pulled down lest it should afford a passage to his enemies. The fine bridge of Nismes is also a Roman structure, and answers the double purpose of a bridge over the river Gardon; and an aqueduct for supplying the people of Nismes with water. This bridge consists of six arches of majestic proportions and extraor-

dinary strength, and is 470 feet long. On this level is erected a series of 11 arches which are continued beyond the extremities of the bridge, and form a junction with a slope of the mountain on each side; over these is a third series of 35 arches, much smaller than those below, though 850 feet in length, and supporting a canal on a level with two mountains, along which the water is conveyed to Nismes by a continued aqueduct. This extraordinary edifice is built with very large stones, held together by iron cramps without cement, and is still in perfect preservation, a mighty monument of the resources, the perseverance, the magnificence of those great people, the ancient Romans, who have left, in almost every country in the world, imperishable evidences of their presence as rulers.

There is also another extraordinary Roman bridge in France; it spans the Loire near the old town of Brionde, with one arch, whose span is 181 feet. Its greatest height, from the level of the water to the intrados, is sixty-eight feet, and its breadth 13.

Old London-bridge was a wooden structure of the days of Henry II. (1176). Its nineteen arches and its street of shops were objects of curiosity and interest. With numerous alterations and patchings up, it remained in use till 1831. One by one its old adornments and peculiarities gave way before modern innovation, its narrow arches, not much broader than the windows of some Gothic aisle, gradually widened, the chapel of the "Unbelieving Thomas" was pulled down, a modern parapet usurped the places of the busy trading marts, and the Southwark Gate, where many a traitor's head blackened and rotted in the sun, no longer frowned upon the multitude who passed across.

The modern bridges across the Thames at the metropolis form noble specimens of bridge architecture and engineering; but those constructed in the last century—Westminster and Blackfriars bridges—have entailed heavy subsequent charges on account of the insufficiency of the foundations. The new London-bridge is built 180 feet higher up the river than the old one; it consists of five semi-elliptic arches, the centre arch being 152 feet wide, the rise above high-water mark 29 feet 6 inches. The whole length of the bridge is 928 feet, the roadway 53 feet wide between the parapets. It was commenced in 1824, and completed in seven years. Southwark-bridge was built by Rennie at a cost of £800,000. It is 718 feet between the abutments, and consists of three cast-iron arches: the span of the centre arch is 250 feet. The weight of iron employed was upwards of 5,700 tons. Waterloo-bridge is nearly 400 yards long, a handsome granite structure, supported by nine elliptical arches of 120 feet span.

The first iron-bridge in England was erected in 1779, over the Severn, at Coalbrook-dale. It consists of a single arch of about 100 feet span. Bishop Wearmouth iron-bridge, completed in 1796, is a single arch of 240 feet span; and Sunderland iron-bridge, built about the same time, is 236 feet span.

In 1796 Mr. Finlay, an American, constructed an iron suspension-bridge in the United States. He afterwards obtained a patent, and erected a great number of similar bridges in various parts of America—one over the Schuylkill was 306 feet long. This probably originated the scheme which was proposed in 1807 by M. Belu, a French engineer, for crossing the Rhine between Wesel and Ruderich by a bridge about 820 feet long, to be supported by a network of wrought-iron chains.

In 1818 the Holyhead Commissioners applied to Telford for his opinion respecting the erection of an iron suspension-bridge at the Menai, a narrow channel about 17 miles in length, which separates the island of Anglesea from the mainland of Wales. The bridge was commenced August 10, 1819, and the mail-coaches drove over it for the first time January 30, 1826. The distance between the points of suspension is 560 feet, and the height of the carriage-way above high-water in the strait is 100 feet. The roadway of the bridge is divided into two carriage-ways, each twelve feet wide, with a footway four feet wide between them. The main chains are sixteen in number, with a deflection of 37 feet. The weight of the ironwork is 644 tons.

While the Menai bridge was in progress, the suspension pier at Brighton was constructed by Sir S. Brown. It consists of four openings of 255 feet each. In 1824 the Hammersmith suspension bridge was commenced, being the first erected in the vicinity of London. The Hungerford bridge was opened on the 18th of April, 1845. Perhaps the finest suspension-bridge ever constructed, is that built by Mr. Tierney Clark over the Danube, at Pesth. In extent and cost it exceeds all others; it was finished in 1849, and was shortly afterwards traversed by the Austrian and Hungarian armies.

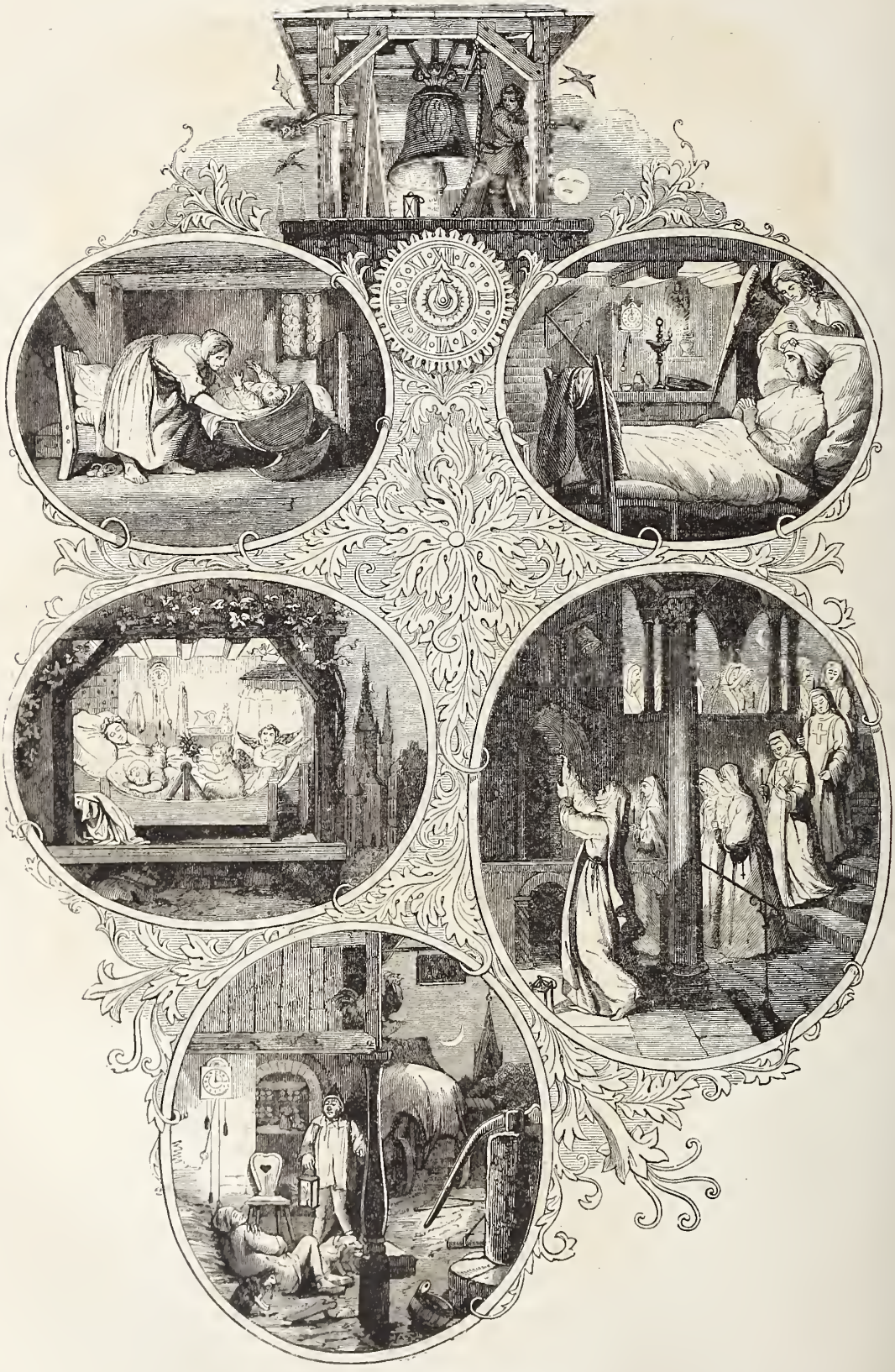
An ingenious modern contrivance is the floating-bridge contrived by Mr. Rendel in lieu of an ordinary steam ferry-boat, for which the current was found to be too strong, as a means of communication between Torpoint and the Cornwall shore, at the mouth of Plymouth harbour, and which has since been applied also to the harbours of Dartmouth, Porstmouth, and Southampton. It consists of a large flat-bottomed boat, the deck of which is adapted to receive horses and carriages, as well as foot-passengers, and which is propelled by means of wheels turned by a steam-engine mounted in the vessel. These wheels take hold of chains which are extended from shore to shore, fastened at both extremities, but allowed to hang under water in a festoon or curve. The chains which are not absolutely fixed at the ends, but are attached to very heavy balance weights, are lifted up by the vessel as it proceeds, and serve not only as an abutment to secure the progress of the vessel, but also to keep it in its right course.

Not long since public attention was directed to a new kind of bridge architecture, rendered familiar to the visitors at the Surrey Zoological Gardens as the Remington Aerial bridge. These bridges are formed entirely of thin pieces of wood, so light and thin that their ability to bear the weight of many persons at one time has been a matter of surprise. A bridge of this sort was erected over the Trent, and is 150 feet in span. But the most remarkable specimen of bridge building, unequalled perhaps in the world, is that which was erected by Mr. Stephenson for the Chester and Holyhead Railway—the *Britannia Tubular Bridge*. It consists of two tubes of iron placed side by side through which the up and down trains respectively pass. The whole length of each tube is 1516 feet, and the height above high-water-mark 102 feet. Each tube is formed of four pieces, which unite and rest upon the central pier built on the Britannia rock in the middle of the Menai Straits, on two towers on the shores of Anglesey and Caernarvonshire respectively, and on two abutments farther inland on each coast. There are, therefore, eight tubes in all; they are formed of plates of wrought iron strongly riveted together, the weight of the whole is 10,000 tons. On October 21, 1850, the tubes were opened for public traffic. During the five years between 1845 and 1850, the work had rapidly proceeded. At the latter end of June in the former year the bill sanctioning the Britannia Bridge was passed in parliament. In July the preliminary experiments were made; in April, 1846, the first stone of the Britannia tower was laid; in June, 1847, the first vessel arrived with iron in the strait; on May 4, 1849, the first tube was completed, and platform cut away; in June, the first tube floated; in November, the first tube was deposited in its permanent bed; December 4, the second tube floated; February 7, 1850, second tube deposited on permanent bed; March 3, Caernarvon small tube lowered; March 5, the first engine passed through the tube, and the last rivet was inserted; March 18, the single line of tube was opened for the public traffic; on June 10 the third tube of the second line was floated; July 11, third tube deposited; on the 25th of July the last tube was floated, and in less than three months the bridge was finally completed and opened for public use.

It is interesting to look on the works of man; every creation of art, every triumph of engineering, every new invention, every great discovery, every mechanical contrivance, has its own peculiar lesson, and the greater the work achieved the deeper and more solemn the lesson becomes, teaching us in its own strong, earnest manner the power of mind over matter.

In these latter days our public works may not be so stupendous as some of the great monuments of antiquity, but as long as they last their uses will be apparent,—monuments of our power, and wealth, and glory, when our empire has passed away, and when our conquests are forgotten. We are not so prolific in works of beauty as many of our neighbours, but in the useful, none can rival us. The Menai bridge is a better exponent of the genius of the Saxon race than all the books that have ever been written.

THE NURSE'S CLOCK.



THE HOURS OF THE NIGHT. DRAWN BY FREEMAN.

One of the best collections of the popular songs of Germany is that published by M. C. Brentano, entitled *Des Knaben Wunder Horn*, "The Child's Magic Horn." This appellation, singular as it may seem, fully expresses the character of the work, it is in fact a sort of poetic *mélange*, filled with touching romances, ballads of chivalry, old melodies, traits of the religious belief of



THE HOURS OF THE NIGHT. DRAWN BY FREEMAN.

the people in the olden time, war-cries, &c. It is, in truth, a faithful picture of old Germany, and the faithful echo of sentiments which for many a century softened the hearts of children, lightened the labours of the day, and made merry the winter fireside.

We have chosen from this collection a little piece, called the

Nurse's Clock, which has been illustrated by an able artist. The good woman is supposed to be sitting by the cradle, and singing to her little charge what happens each hour during the night.

"The moon is rising. The child cries. The clock has struck *twelve*. God be merciful to the sick and the afflicted.

"God knows all things. The little mouse runs about. The clock strikes *one*, and dreams flit around the ear.

"The nuns prepare for matins. The clock strikes *two*. The nuns assemble in the church.

"The wind blows; the cock crows. The clock strikes *three*. The carrier gets up from his straw bed.

"The horse neighs. The door of the stable opens. The clock strikes *four*. The carter brings corn to the manger.

"The lark sings; the morning dawns. The clock strikes *five*; and the traveller sets out on his journey.

"Run to the baker's and buy white bread.

"The hen cackles. The duck flaps her wings. The clock strikes *six*. Get up, you lazy girl.

"The clock strikes *seven*. Put the saucepan of milk on the fire.

"Get the butter and the sugar. The clock strikes *eight* Make haste, and bring the child its breakfast."

WRITING MATERIALS.

It is estimated that there are 587 languages and general dialects in Europe; 937 in Asia; 226 in Africa; and 1,264 in America;—in all, nearly 3,000. The transitions of languages have been referred sometimes to an indefinite antiquity, sometimes to distinct races of men. Moses, our oldest historian, refers the matter to Babel building upon Shinar's plain. Careful examination substantiates this statement. There are in all languages one great primary origin. Powers of voice are as natural to man as to animals and birds. Monosyllables are the primitive sounds, and syllabic compounds are the result of interchange with other nations. Hence all the fundamental tongues are monosyllabic as to generic ideas and compound species and varieties. The Sanscrit, Chinese, Welsh, Greek, Hebrew, and German, are formed on this principle.

The Chinese have 214 radical words and signs to represent them; out of these by synthesis other words are formed. It has been computed that there are 20,000 words in Spanish; 25,000 in Latin; 25,000 in English; 30,000 in French; 45,000 in Italian; 50,000 in Greek; and 80,000 in German. There are 1,700 radical words in Hebrew.

Speech itself is one of the greatest marvels of man's nature. To utter thought, to communicate ideas, is as wonderful as it is useful. Without speech man's knowledge would be of little use to him. He might think, and feel, and reason, but it would be only for himself. Gigantic intellect might grasp the whole race of human knowledge, but those acquisitions must die away unuttered. Our pious fathers feeling well the importance that lay in the speaking of man to man, founded places where men could teach, when as yet teaching by the voice was the sole method of instruction. Universities arose while there were yet no books procurable, when a man for a single book had to give an estate of land. However great and wonderful the power of speech, something more was required for a world's population,—and writing, a second kind of speech, was the gift desired and the gift bestowed.

It was an epoch when contemplative man first began to represent sounds and ideas by signs. It was something to design thought by a rough outline picture, but something more when these rude hieroglyphics were abbreviated into current written characters.

The alphabets of different nations contain the following letters: English, 26; French, 23; Italian, 20; Spanish, 27; German, 26; Sclavonic, 27; Russian, 41; Latin, 22, Greek, 24; Hebrew, 22; Arabic, 28; Persian, 32; Sanscrit, 52; Chinese, 214.

In the most ancient times, writing was used for great occasions only, and then a rock, a tablet of stone, or a plate of metal was the receptacle. The Decalogue was written on tables of stone. Job desired that his words might be written with an iron pen, and lead in the rock. The works of Homer and Hesiod were first written on plates of lead, and many ancient documents on copper, of considerable extent, are still met with in India. The use of the tablet stone is still familiar, and the sculptured works of the north of Europe show the practice of consigning records to this imperishable material to have been frequent amongst our ancestors of the ninth and tenth centuries.

By the Egyptians, and probably by the Greeks, leaves of trees were used, and of the papyrus-shrub paper was manufactured A.C. 700. The leaves of some Asiatic trees are, from their size and smoothness, so admirably adapted for books, that the cheapness and beauty of European paper has not been able entirely to supersede their use. If we may judge from the name *leaf* being still applied to paper books, we should fancy these leaves to have been formerly the article chiefly in use.

Some persons are of opinion that the first writing was upon thin pieces of wood, so that a *billet-doux* was something like an ordinary trencher; but the idea itself is not at all unlikely. Boards were used at an early period by the Greeks and Romans. These boards were covered with wax, but as this was easily obliterated such writing was only used for temporary purposes. In one of the comedies of Aristophanes, a debtor proposes to elude the payment of a debt by melting with a burning-glass the wax which bore the record of the debt. The writing was drawn with a steel point upon the surface of the white wax, and the scratches were then filled up with a black substance to render the writing more legible.

According to Pliny, the Romans sometimes used linen cloth to write upon, and remains of such a practice, as in use among the Egyptians, have been very often found in unrolling mummies. But to write on linen it was necessary to paint upon it with some coloured liquid, which would get dry and leave a permanent mark. This gave rise to the invention of pen and ink; the first ink used was probably composed of soot, or lampblack, mixed with size or gum and water. This description of ink, though less fluid and more difficult to write with than our ink in common use, possesses very great advantages, resisting chemical action and being unalterable in colour. A reed or bulrush, was cut into the form of a quill, and used as a pen. The quill appears to have been first in use about the year 600. The word *penner*, meaning a quill, is not found in any work older than that period. The quill has an advantage over the reed, in being finer and more durable. Instances are not rare, in which a quill pen has served its owner for years. P. Holland, the translator of Pliny, completed that work with a single pen; which fact he records in oft-quoted doggrel:—

"With one sole pen I wrote this book,
Made of a grey goose quill;
A pen it was when I it took,
A pen I leave it still."

Leo Allatius used the same pen for forty years, and did not wear it out then: he lost it, and bewailed the loss as of a tried and faithful friend.

The skins of animals were another and very ancient material for writing upon. Very ancient copies of the Scriptures are preserved written on parchment died red. The invention is generally ascribed to Eumenes, king of Pergamus, who reigned more than two thousand years ago. He was the founder of an extensive library, into which the new manufacture was largely introduced. Parchment volumes were commonly rolled on a round stick, with a ball at each end, and the composition began at the centre. These were called volumes, and the outsides were inscribed just as we now letter books. The Greek MSS. in Herculaneum, consist of papyrus, rolled, charred, and matted together by the fire, and are about nine inches long, and one two, or three inches in diameter, each being a volume or separate treatise.

Cotton and silk papers were in use at an early period, but linen rags were not used till A.D. 1200. This invention has been placed earlier by some good authorities, but it would appear that they have confounded the cotton with the linen paper. The

first paper-mill was erected in England towards the end of the sixteenth century.

The means which have been employed for the dissemination of knowledge, the feebleness of verbal instruction for the wants of man, the scanty means afforded by the art of writing, when the business of transcribing was so laborious and expensive, and the blessing to the world which came when printing and ready writing sent forth its thousands of copies to a knowledge-seeking people, when knowledge was no longer a forbidden fruit, but free alike to all, when not only the few but the many, became possessed of all the rich and varied treasures it affords, are the business of the historian.

NEGRO SLAVERY.

The tribute which Great Britain has paid to the genius of humanity, by her efforts and sacrifices for the abolition of the African Slave Trade and Negro Slavery, is the Englishman's proudest boast. Half a century ago, Curran said, "I speak in the spirit of our constitution, which makes liberty commensurate with and inseparable from our soil; which proclaims even to the stranger and sojourner, the moment he sets his foot upon our native earth, that the ground he treads is holy, and consecrated by the genius of universal emancipation. No matter in what language his doom may have been pronounced; no matter what complexion, incompatible with freedom, an Indian or an African sun may have burnt upon him; no matter in what disastrous battle his liberty may have been cloven down; no matter with what solemnities he may have been devoted on the altar of slavery: the first moment he touches our sacred soil, the altar and the god sink together in the dust; his soul walks abroad in her own majesty; his body swells beyond the measure of his chains that burst around him; and he stands redeemed, regenerated, and disenthralled by the irresistible genius of universal emancipation." This statement is far more true in our days than it was fifty years ago, thanks to the services and victories of Sharpe, Clarkson, Wilberforce, Stephens, Brougham, Macaulay, Buxton, Cropper, Gurney, Knibb, Sturge, O'Connell, and others, fellow-labourers in the good work of slavery abolition.

In the year 1824 an English cruiser gave chase to a slaver on the coast of Africa. It was "*La Jeune Estelle*," commanded by Captain Olympe Sanguines. During the pursuit several hogsheads were seen to float past the English cruiser; these, however, did not attract much attention, as it was supposed that the slaver was throwing overboard her water-casks in order to hasten her escape. Upon boarding the "*Jeune Estelle*," the English were unable to discover any slaves, although every appearance indicated that the ship had lately been tenanted by those unhappy beings; and upon examination they found concealed in a large hogshead, two negresses about fourteen years of age. All was explained. The hogsheads which they had observed had contained the negroes, and by thus casting them into the sea, the evidence of guilt had been destroyed.

The exhibition of the irons with which the negroes were confined, excited the deepest horror, not only in England, but in France and other lands; the statements which were made, and the evidence adduced on this and similar occasions, aroused public indignation and enlisted public sympathy. Before the French legislative assembly, it was stated that negroes on board slavers were confined in less space than was given *to a dead man in the grave*. Such doings were not rare. The very means which were employed for the repression of the trade only rendered the transport of the slaves more fearful as it became more hazardous; the vessels in which they were conveyed well deserved the name of "floating coffins," which had been bestowed upon them, the fear of detection and punishment inciting the slave-dealers to fresh crimes. The case of "*La Jeune Estelle*" was only one of many slave-traders which, when hard pressed, cast their living cargo overboard. Our engraving represents such a scene.

Every expedition in the trade was attended by a series of horrors repugnant to humanity; the negro was seized and marched with his captors to the coast and there detained until they would secretly place him on board their vessels. The cupidity of the negroes themselves was excited, and they would sell one another, and on the common average it was stated that every slave cost three lives in the struggle of his capture or betrayal.

In the interior of the slave ship the negroes were arranged with the most cruel economy of space. Men, women, and children were chained together, two and two, by the hands and feet, and kept thus for months upon the African coast until the requisite number of slaves could be obtained for a profitable cargo.

Upon arriving at their place of destination, they were exposed for sale in the public markets. A new series of calamities and miseries then commenced, the separation of relations, the husband from the wife, and the mother from her child, were followed by the severest and most unremitting toil, rendered still more undurable by the cruelty of those who were the drivers, or middle men, between the owners and the slaves.

Such a state of things needed, and produced something more than sympathy. "True humanity consists not in a squeamish ear; it consists not in starting or shrinking at tales such as these, but in a disposition of heart to relieve misery. True humanity appertains rather to the mind than to the nerves, and prompts men to use real and active endeavours to execute the measures which it suggests."

The importation of fresh negroes from Africa to our colonies was declared illegal in 1807. This victory was only gained by a twenty years battle. Whilst, however, the British slave-trade had been abolished, British slavery remained. Though no fresh importations could be received in our dependencies, the negroes who were there remained in bondage, and England, rejoicing in her liberty, had a slave population in the West Indies. Public sentiment was gradually enlisted, till in 1823 it had become sufficiently aroused to cause the passage in Parliament of Mr. Canning's celebrated resolutions, declaring the expediency of adopting decisive measures for ameliorating the condition of the slave population in the colonies preparatory to their complete emancipation. A ministerial circular was sent to the colonies, directing the authorities to act upon these resolutions in the future treatment of the slave population; but these circulars were either contemptuously defied or coolly disregarded.

Towards the close of the year, the negroes, who had heard of the order in council, and fancied that "the great king of England" had set them free, refused to work. Compulsion was resorted to—they resisted—martial law was declared, and pressed down and running over was the measure of vengeance dealt to the unhappy slaves. Above one hundred fell in the field, forty-seven were executed, and ten torn to pieces by the lash,—being condemned to receive from five hundred to one thousand lashes. The infuriated planters endeavoured to trace the origin of the revolt to a venerable English missionary, the Rev. John Smith, who was tried, convicted, and sentenced to death, but died before the day of execution. This attempt to

> ——— "bring back
> The Hall of Horrors and the assessor's pen,
> Recording answers shriek'd upon the rack,"

produced a powerful effect in England, and the missionary Smith's case became a rallying-cry.

The liberal tendencies of the years 1830-1 were peculiarly advantageous to the abolitionists, and they gathered strength by agitating the country through numerous publications and addresses. The outbreak in Jamaica, the destruction of the chapels and meeting-houses, and the exile of the missionaries, stirred the national heart to its core. Parliament could not be insensible to the popular voice—a committee was appointed to consider the expediency of abolishing slavery in the islands. Mr. Buxton was chairman of that committee. The inquiry extended over three months. The result condemned slavery; and at the fetters of the slave a blow was at length struck, which would make them fall off his limbs for ever.

Mr. Stanley brought out the government plan of abolition. It bore the stereotyped ministerial stamp. It was a compromise between what justice demanded and oppression would grant. It

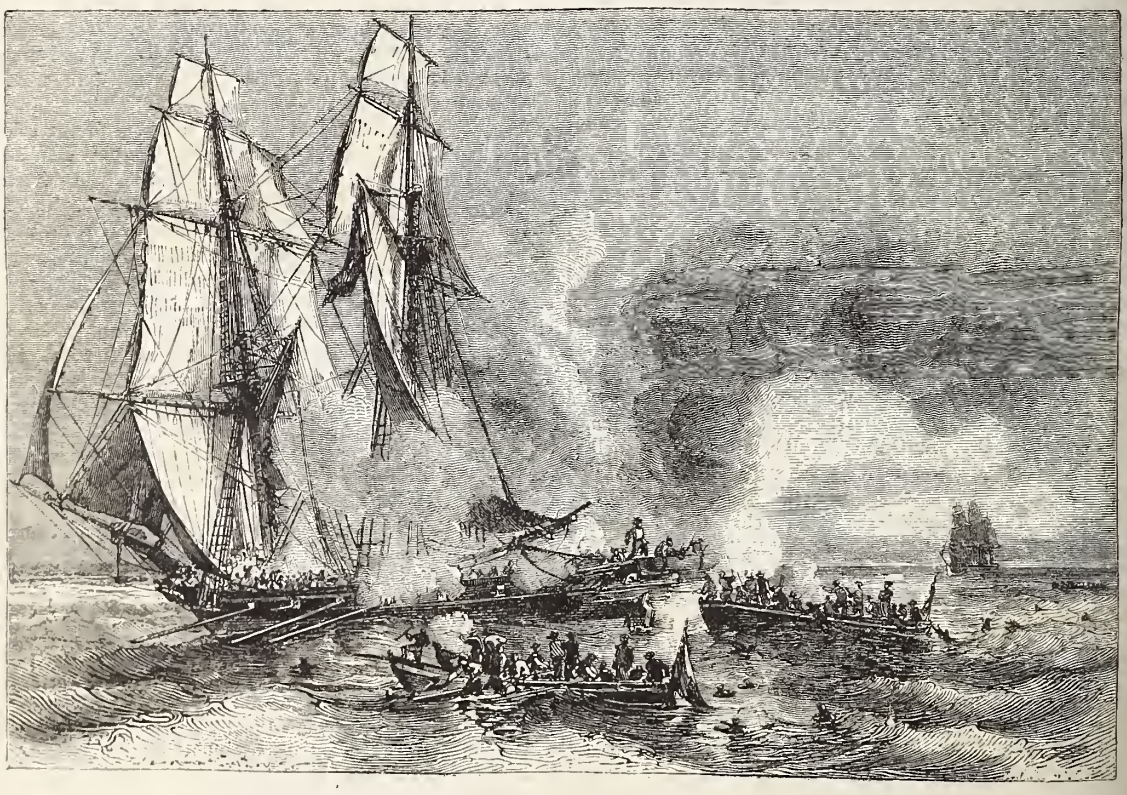
immediately emancipated all slaves under six years of age; and subjected house servants to an apprenticeship of four years, and agriculturists of six to their former masters; and gave to the latter a compensation of £20,000,000. At the end of the apprenticeship the negroes were to be completely free. The scheme was warmly denounced; the bill however became law on August 28th, 1833. Antigua and the Bermudas discarded the apprenticeship and adopted complete abolition, the act giving to the colonies the alternative. Time showed the wisdom of their choice. They avoided the interminable disputes between masters and apprentices, and by the change reaped all the good fruits and none of the bad.

A numerous convention of delegates met in London in 1837; resolved that the apprenticeship should cease on or before August the 1st, 1838. They memorialised government; seven hundred thousand women presented their prayer to the Queen. Parliament began to move. While the agitation was going on, a ministerial despatch appeared in the West India papers, urging upon the colonies to do that for themselves, which the people of England would otherwise compel them to do. One after another the smaller islands yielded to the ministerial solicitation; then came Jamaica with her 330,000 apprentices. This settled the question. Ministers pledged themselves that all should be completed on the required day. On the 1st of August, 1838, the friends of emancipation assembled in all parts of the empire to thank God for the final overthrow of British negro-slavery.

Would that slavery, the wide world over, had ended then—that, looking over the broad Atlantic, we saw nothing but liberty under the standard of the Stars and Stripes; that nowhere beneath the great blue vault of heaven "God's image, cut in ebony," was kidnapped, and worked, and lashed, and killed by the "devil's image cut in ivory." America, the land of the bravo and the free, owns slaves! From the last American census, it appears that there are 3,179,589 slaves in the United States. There are 113,000 slaveholders. It is estimated that the number of fugitive slaves amounts to 50,000; and the recent fugitive slave law, which overrides the safeguard thrown around them by the more humane legislation of the free states, subjects every one of these unhappy persons to capture, and, by a summary process, hands them over to their old owners or their representatives.

Men who have been free for years, and safe in a free state, are thrown into the greatest alarm and perplexity, and are looking about for places of refuge. Some have found their way to England, many have fled to Canada, and those who, by honest industry, have been able to obtain a comfortable homestead, have been compelled to sacrifice all for a trifling consideration, in order that they may secure their liberty by flight. The Fugitive Slave Law denies the privilege of trial by jury to the slave. "A human being," says Judge Jay, "is stripped of every right, and reduced to the condition of a vendible beast of burden, with less ceremony, and with more celerity than one neighbour can recover of another the value of a pig in any court of justice."

How long will the land of liberty let this go on? Of the thirty-one states which form the Union, there are sixteen states in which slavery is contrary to law, and fifteen slave-holding states. How long will America delay what must come at last,—that which the age demands, and the justice of the case requires,—



CAPTURE OF A SLAVER.

that the slave may possess his rights, and have his liberty without stint; and the beautiful lines of Montgomery be as true with regard to America as they are of England:—

"Hie to the mountains afar,
All in the cool of the even,
Led by yon beautiful star,
First of the daughters of Heaven.

Sweet to the slave is the season of rest;
Something far sweeter he looks for to-night;
His heart lies awake in the depth of his breast,
And listens till God shall say, 'Let there be light!'

Gaze ye awhile from this peak,
Praying in thought while we gaze,
Watch for the dawning first streak,—
Prayer then is turned into praise.

Shout to the valleys, 'Behold ye the morn,
Long, long desired, but denied to our sight!'
Lo, myriads of slaves into men are new born;
The word is omnipotent, 'Let there be light!'"

THE LADIES' DEPARTMENT.

COLLAR EMBROIDERED IN SATIN STITCH.

MATERIALS.—A piece of fine French cambric, and the best embroidery cotton.

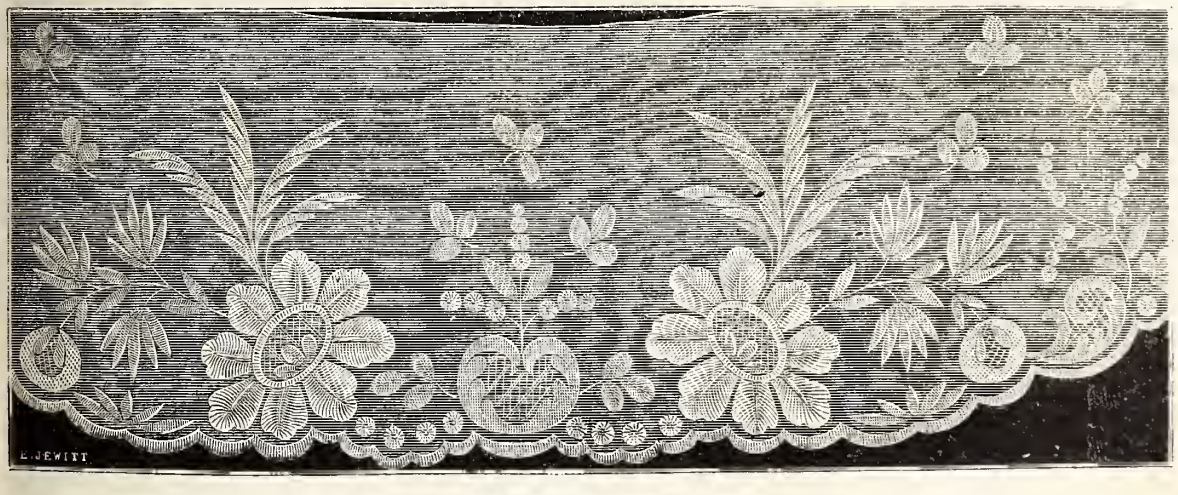
This pattern, of which we give half the full size, is to be traced from the engraving, and marked on cambric, in the manner already described in our Instructions in Embroidery. Every part is then traced with the finest embroidery cotton, great care being taken to preserve the delicate forms of the leaves and other parts.



COLLAR EMBROIDERED.

The edge is worked in graduated overcast stitch, the scallops being wider in proportion as they are larger.

The leaves are in plain raised satin-stitch, the points being marked with extreme accuracy. The small shamrocks with which the plain part of the collar is spotted, have an outline thread surrounding each leaf, very neatly sewed over. The petals of the flowers are also worked in raised satin-stitch, leaving the vein to be sewed over, and a series of very small spots to mark the outline of each petal. The round spots seen in the border, and in the sprays, are made by piercing a very small hole, with a stiletto, and working round it, slipping the needle through it at every stitch. The centres of all the flowers are all done in open stitches. These are formed by making small holes in the cambric with the needle, and working the bars of cambric between them. A variety in the appearance of the stitches is produced by leaving all the holes open, or by closing up every second or third row with a small cross-stitch.



COLLAR EMBROIDERED IN SATIN STITCH.

WINTER DRESS FOR A CHILD OF TWO YEARS.

MATERIALS.—Half a pound of four-thread white Berlin wool, and one ounce of four-shades crimson; steel knitting-needles with heads, Nos. 11 and 13. Three yards narrow crimson ribbon. Select the wool, if possible, in ounce skeins.

FOR THE SKIRT.—Cast on 451 stitches on one of the coarse needles with white wool; knit 3 plain rows, join on the lightest shade of crimson, knit 3 rows plain.

4th coloured row: Knit 2 ×, make 1, knit 2 together ×, repeat to the end, knit 1 plain.

5th coloured row: Plain knitting, join on next shade and repeat these 5 rows.

Join on third shade and do the same.

Join on the darkest and do the same pattern twice, do 5 similar rows with each of the other 3 shades, ending with the lightest.

Join on the white wool; × knit 2, purl 1, and without taking the thread back slip 1, knit 1, pass the slip stitch over; × repeat to the end of the row, finish with 1 plain, knit backwards and forwards in this way till sufficient is done for the length of skirt, and cast off. About 7 inches will be found sufficient.

FOR THE BODY.—With the finest needles cast on 116 stitches in white wool, knit one plain row, join on the lightest crimson; knit 2 ×, make 1, knit 2 together, × repeat to the end, knit 1 plain row.

Join on the next shade.

1st pattern row: Knit 5, × purl 1, then without taking the thread back slip 1, knit 1, pass the slip stitch over, knit 1, × repeat to the end, and finish with 3 plain stitches.

Do another row with the same shade, 2 with the next, 4 with the darkest, 2 with each of the next two shades, and 1 of the lightest. On doing the second row of the lightest knit 5 stripes, cast off 4 *very loosely*, knit 9, cast off 4 more, and knit the remainder as usual.

Join on the white, and knit like the preceding, casting on the same number of white where the coloured were cast off. Knit from three to four inches in the same pattern and cast off.

For the Sleeves.—Cast on 32 stitches with white wool, knit 1 white row, and then a stripe like that at the top of the body. Then join on the white and do about an inch without decreasing. Knit 10 rows more, decreasing 2 stitches at the beginning of every row. Cast off. Sew up the sleeves, making the seam on the right side of the crimson stripe, in order that it may be turned up over the white, and sow them into the arm-holes.

Connect the body and skirt by a band of linen tape an inch and a half wide. Run a ribbon through the open hem at the top, and put 2 strings on the back. Button the band, and finish with a very broad sash of crimson ribbon.

THE HUMAN HAND.

In that portion of the works of Galen which bears this title, "On the Use of the various Parts of the Body," after having defined what is to be understood by the term *part*, or *member*, as applied to an animal body, he proceeds in the following manner:—

"But all these parts of the body were made for the use of the soul,—that sentient and intelligent principle which animates the body, and of which the body is merely the organ; and on this account the component parts of animals differ according to the nature of this principle: for some animals are bold and fierce; others are timid and gentle; some are gregarious, and co-operate for their mutual sustenance and defence; others are solitary, and avoid the society of their fellows; but all have a form or body accommodated to their natural dispositions and habits. Thus, the lion has powerful fangs and claws; the hare has swiftness of foot, but in other points is defenceless. But to man, the only animal that partakes of Divine intelligence, the Creator has given, in lieu of every other natural weapon or organ of defence, that instrument, *the hand;* an instrument applicable to every act and occasion, as well of peace as of war. Man, therefore, wants not a hoof, or horn, or any other natural weapon; inasmuch as he is able with his hand to grasp a much more effective weapon,—the sword, or spear. Besides which, natural weapons can be employed only in close conflict; while some of the weapons employed by man, as javelins or arrows, are even more effectual at a distance. And, again, though man may be inferior to the lion in swiftness, yet by his dexterity and skill he breaks into his use a still swifter animal,—the horse; mounted on whose back, he can escape from, or pursue the lion, or attack him at every advantage. He is enabled, moreover, by means of this instrument, to clothe himself with armour of various kinds, or to intrench himself within camps or fenced cities. Whereas, were his hands encumbered with any natural armour, he would be unable to employ them for the fabrication of those instruments and means which give him such a decided advantage over all the other animals of creation.

"Nor have we yet enumerated the most important of those privileges which the hand imparts to man. With this he weaves the garment that protects him from the summer's heat or winter's cold; with this he forms the various furniture of nets and snares, which give him a dominion over the inhabitants as well of the water as of the air and earth; with his hand he constructs the lyre and lute, and the numerous instruments employed in the several arts of life; with his hand he erects altars and shrines to immortal gods; and lastly, by means of the same instrument, he bequeaths to posterity, in writings, the intellectual treasures of his own divine imagination."

Let us, then, scrutinise this member of our body, and inquire not simply whether it be in itself useful for all the purposes of life, and adapted to an animal endued with the highest intelligence, but whether its entire structure be not such, that it could not be improved by any conceivable alteration.

In the first place, it possesses, in an eminent degree, a leading quality of an organ of grasp, since it readily applies itself to, and securely holds, bodies of every form and size that are capable of being moved by human strength. Nor need we inquire whether it be better for this purpose that it should be divided into several parts, or that it should be altogether undivided; for is it not apparent, without further reasoning, that, had it been undivided, it could have grasped only just such a portion of every object presented to it as was equal to itself? but that, being divided into many parts, it can both easily grasp bodies much larger than itself, and can accurately search out, and lay hold of, the smallest particles of matter; for to the former, it is capable of applying itself so as to encompass them by the separation of the fingers, while, in laying hold of very minute objects, the entire hand is not employed, but only the tips of two of the fingers, because from the grasp of the whole hand minute objects would easily escape.

Thus, then, the hand is framed in the manner the most convenient for laying a firm hold on objects both greater and less than itself. And in order to enable it to apply itself to objects of various shapes, it is evidently most convenient that it should be divided into many parts, as it is, and seems to be better constituted for this purpose than any similar instrument; for it not only can apply itself to substances of a spherical form, so as to touch them with every part of itself, but it also can securely hold substances of a plane or of a concave surface; and, consequently, it can hold substances of any form.

And, because many bodies are of too great a size to be held by one hand alone, Nature has, therefore, made each hand an assistant to its fellow; so that the two, when together laying hold of bodies of unusual bulk, on opposite sides, are fully equivalent to a single hand of the very largest dimensions; and, on this account, the hands are inclined towards, and in every point are made equal to, each other, which is at least desirable, if not necessary, in instruments intended to have a combined action.

Take, then, any one of those unwieldy bodies which a man can only lay hold of by means of both his hands—as a millstone or a rafter; or take one of the smallest objects, as a millet-seed, or a hair, or a minute thorn; or, lastly, reflect on that vast multitude of objects of every possible size, intermediate, to the greatest and the least of those above mentioned, and you will find the hands so exactly capable of grasping each particular one, as if they had been expressly made for grasping that alone. Thus the smallest things of all we take up with the tips of the fingers; those which are a little larger we take up with the same fingers, but not with the tips of them; substances still larger we take up with three fingers, and so on with four, or with all the five fingers, or even with the whole hand; all which we could not do were not the hand divided, and divided precisely as it is. For, suppose the thumb were not placed as it is, in opposition to the other four fingers, but that all the five were ranged in the same line,—is it not evident that in this case their number would be useless? For, in order to have a firm hold of anything, it is necessary either to grasp it all round, or at least to grasp it in two opposite points; neither of which would have been possible if all the five fingers had been placed in the same plane: but the end is now fully attainable, simply in consequence of the position of the thumb, which is so placed, and has exactly such a degree of motion, as, by a slight inclination, to be easily made to co-operate with any one of the four fingers. But it is not merely necessary in laying hold of minute objects to employ the extremities of the fingers opposed to each other, but that those extremities should be exactly of the character they are,—namely, soft and round, and furnished with nails; for, if the tips of the fingers were of bone, and not of flesh, we could not then lay hold of such minute bodies as thorns or hairs; or, if they were a softer and moister substance than flesh, neither then could such small bodies have been secured. For, in order that a body may be firmly held, it is necessary that it be in some degree infolded in the substance holding it, which condition could not have been fulfilled by a hard or bony material; and, on the other hand, a material too soft would easily yield to substances of which it attempted to lay hold, and would continually let them escape; whereas the extre-

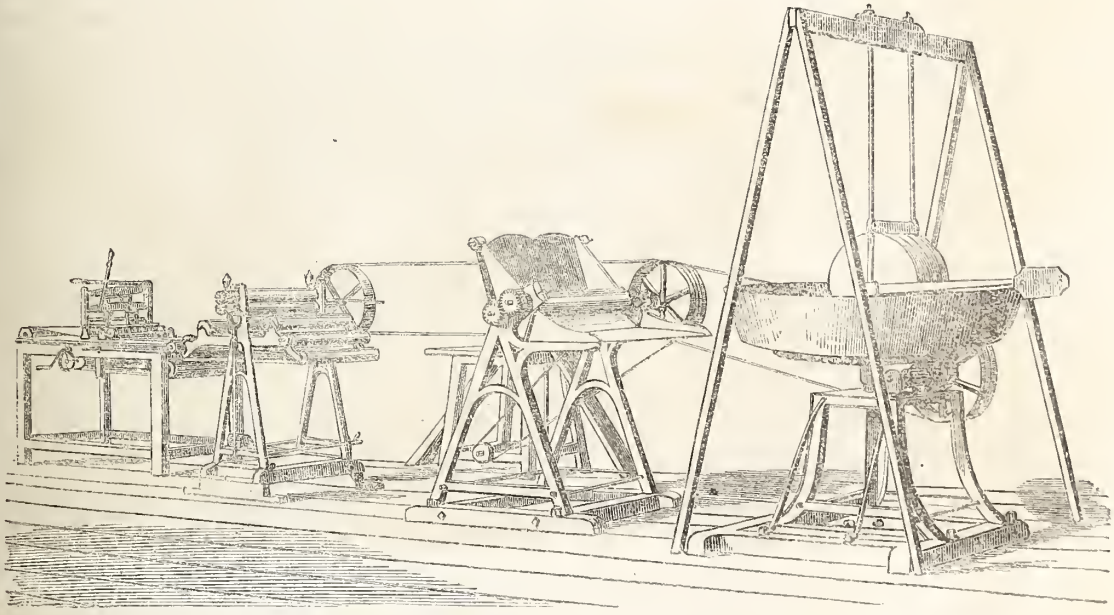
mities of the fingers are just of that intermediate degree of consistence which is calculated for their intended use.

But, since tangible substances vary much in their degree of hardness, nature has adapted the structure of the extremities of the fingers to that circumstance; for they are not formed either entirely of flesh, or of the substance called nail, but of a most convenient combination of the two; thus, those parts which are capable of being mutually brought in opposition, and which are employed in feeling for minute objects, are fleshy; while the nails are placed externally, as a support to the former. For the fingers are capable of holding soft substances, simply by the fleshy or soft part of their extremity; but they could not hold hard substances without the assistance of nails; deprived of the support of which the flesh would be forced out of its position. And, on the other hand, we could not lay hold of hard substances by means of the nails alone; for these being themselves hard, would easily slip from the contact of hard bodies.

Thus, then, the soft flesh at the tips of the fingers compensating for the unyielding nature of the nails, and the nails giving support to the yielding softness of the flesh, the fingers are hereby rendered capable of holding substances that are both small and hard. And this will be more evident, if you consider the effect of an unusual length of the nails; for where the nails are immoderately long, and consequently come in contact with each other, they cannot lay hold of any minute object, as a small thorn or hair: while, on the other hand, if, from being unusually short, they do not reach the extremities of the fingers, minute bodies are incapable of being held, through defect of the requisite support: but if they reach exactly to the extremities of the fingers, they then, and then only, fulfil the intention for which they were made. The nails, however, are applicable to many other purposes besides those which have been mentioned, as in polishing and in scraping, and in tearing and peeling off the skin of vegetables or animals: and in short, in almost every act where nicety of execution is required, the nails are called into action.

PATENT BISCUIT-MAKING MACHINE.

In the city or at the railway-station, the man of business—too busy to sit down to eat, and too hungry to wait till dinner-time—seizes half a dozen little biscuits, thrusts them in his pocket, and munches them as he converses on 'Change, or is whirled along the iron way at the rate of forty miles an hour! The question of how those nice little biscuits are produced at so cheap a rate, never enters his mind. Why should it? The price of stocks and French rentes, or the quantities of cotton imported from America, are far more interesting topics. But to those who sit at home, and are anxious to understand these things, the question of the how and the wherefore assumes an entirely different complexion. To readers of this class, the brief explanation we are enabled to give of the machinery by which these little biscuits are produced will not prove valueless. A glance at the engraving will assist both them and us; and as it does not at first sight appear how such a combination of machinery can be made to prepare the dough at one end, and produce the biscuit quite ready for the oven at the other, we will endeavour to explain. The flour and other materials are first put into the pan at the right hand of the engraving, where they are thoroughly mixed with water till the substance assumes a slightly doughy form. It is then passed to the "breaking machine," where it is kneaded or masticated till it has become sufficiently tenacious to be passed through rollers. From these rollers,—the third machine in the engraving,—where the dough has been pressed and brought into a sheet of tolerable thickness, it is conveyed to the adjusting cylinders which further reduce it to the required thickness of the future biscuit. The material in the form of a continuous sheet of dough, is then passed on an endless band of canvas, to the last machine, where it is cut into shapes, docked, crimped, and stamped. The biscuits are now divided from the waste dough and carried to the oven to be baked, and in a short time they are ready to be eaten by the busy merchant aforementioned, or any others who choose to buy. The waste dough is afterwards collected, passed through the cylinders, and made up into biscuits as before. The machine, or rather series of machines, may be driven by either hand or steam-power, and only require the attendance of one man. Biscuits made by machinery will keep in a fresh and wholesome state for half a dozen years. The navy and merchant services are supplied almost entirely with a much better kind of biscuit than was common in the days of Nelson and Collingwood; and a large export trade is carried on with various parts of the world. Messrs. Barrett & Co. were the only exhibitors in the Crystal Palace of biscuit-making machinery, though biscuits of various kinds were shown from France, Portugal, Canada, and Van Diemen's Land.



MESSRS. BARRETT, EXALL, AND ANDREWES' BISCUIT-MAKING MACHINES, READING, BERKS.

Two ingenious models of bread-making machines—one by an Englishman, and the other by a Frenchman, were shown, while Mr. Boelstler, a Swiss artisan, exhibited a clever little contrivance for cutting bread into slices, thick or thin, and all ready for buttering!

THE VESPER BELL.

Ave Maria! blessed be the hour,
The time, the clime, the spot, where I so oft
Have felt that moment in its fullest power
Sink o'er the earth so beautiful and soft,
While swung the deep bell in the distant tower,
Or the faint dying day-hymn stole aloft,
And not a breath crept through the rosy air,
And yet the forest leaves seem'd stirr'd with prayer."

BYRON.

It is rather difficult to convey to the mind of the English reader, who has never been in Italy, a just conception of the passing beauties of the evening hour in that splendid climate. In these cold, northern latitudes day fades so insensibly into darkness, that our attention is scarce called to the transition. But in the south of Europe, the twilight is surrounded by glories of which we know nothing: golden hues on the water, on the woods, on the mountain-tops, a sky of the deepest blue, save where the last rays of the setting sun have tinged it with yellow; the air feels soft and balmy, and a mellow light is diffused over the whole landscape. What gives an additional charm to the scene, is the pealing of the vesper bell from the various churches and convents about half an hour after the sun has set. Upon hearing this, every one in Roman Catholic countries, no matter in what way he may be engaged, uncovers his head and repeats the Ave Maria, or salutation of the angel to Mary, upon her conception, followed by entreaty to pray for the worshipper now and at the hour of his death. The hour of twilight seems in all countries, and at all times to have inspired emotions of sadness, or have carried back the mind to past scenes and lost friends. The effect produced by the sound of bells at this hour is well described by Moore :—

"Those evening bells—those evening bells,
How many a tale their music tells
Of youth and home, and that lov'd clime
Where first I heard their soothing chime."

But this feeling, whatever may be its cause, does not by any means prevail in this country with the same intensity as in the Roman Catholic countries of the south, where the sound of the vesper bell is the signal for a solemn act of religious worship. Let our opinions be what they may as to its worth, it must inspire some feeling of solemnity to see all the labour ceasing, all noises hushed, the plough stopped, the spade laid down, the oars raised from the water, and a whole nation engaged in prayer at the same moment every day. Our engraving, from a painting, is a good representation of one of these scenes. Two Italian peasants are rowing a monk along the lake, when the bell tolls the hour for vespers from the adjacent convent, and they immediately suspend their progress, and repeat the formula.



THE AVE MARIA.

The curfew, which by order of the Conqueror was tolled every evening as a signal for the inhabitants to extinguish their fires, we may suppose to have produced a somewhat similar effect. It is said, also, that during the carnival at Rome, when the vesper bell tolls, the rioting and merriment instantly ceases, and all fall down in adoration. This mixture of religion and gaiety is quite characteristic of the people of Italy. Light-hearted and enthusiastic, they think only of the passing hour.

DEATH AND IMMORTALITY.



FROM A DESIGN BY W. BLAKE. DRAWN AND ENGRAVED BY W. J. LINTON.

It is difficult to conceive of the pleasure and delight felt by men of fine taste and lively imagination, when they meet with kindred and congenial spirits. Theirs must he a luxury such as no man of ordinary mind can feel or express. Who, for instance, could describe the pleasure which Michael Angelo would have felt had he lived to read the "Paradise Lost" of our Milton? The almost unearthly conceptions of the poet would have been embodied on the canvas of the painter; and the genius and enthusiasm of the two kindred souls would have been blended in forms which would have immortalised both, and astonished and delighted every beholder. Such, we know, were the feelings with which Fuseli perused the works of our great epic bard; and though, while aspiring to the sublime he occasionally fell into extravagance, yet most of his paintings in the "Milton Gallery" display the genius of a master mind. Thus it was also with Flaxman: whether the Sacred writings or the pages of Homer lay before him, he seemed to catch the inspiration, and committed to paper, or to the plastic clay, the ideas of his own vivid imagination. Other instances might easily be furnished.

On the present occasion we place before our readers an illustration of some lines in the poem entitled "*The Grave*," by Robert Blair. Mr. Blair was a Scottish clergyman of some eminence; chiefly known, however, by the above-named poem, first published in the year 1743; since when it has been reprinted in a variety of forms. It has sufficient merit to secure its immortality. This fine poem fell into the hands of William Blake, an artist of singular taste, and of vivid, if not flighty, imagination. He was born in London in November, 1757, and was designed by his family for a hosier; but this design was abandoned, as it was found impossible to divert his attention from his pen and pencil. He adopted the profession of an engraver, though he was never able so far to secularise himself as to render any of his productions a source of profit. At an early period he published several of his fanciful creations, full of feeling, delicacy, and genius. These were regarded by many with admiration, and by most with respect, though some of them were too spiritual, or too mystical, to be understood by the multitude. Among the earlier products of his peculiar talent were "The Songs of Innocence and Experience," a strange performance, but furnishing indubitable proofs of poetic and artistic genius—sweet lyrics illustrated with beautiful designs. His work, "Gates of Paradise," is the relation of a sort of trance, or vision, leaving behind it salutary and lasting impressions, which the poet-artist sought to convey to others. His "Books of Thel and Urigen," is another of his most original and striking performances.

Mr. Blake's pen and pencil were rarely idle. In addition to illustrations of his own lyrics, he designed and executed a series of illustrations as borders, head and tail pieces, &c., to a folio edition of Dean Young's "Night Thoughts," a poem in which he greatly delighted, and the sentiments expressed in which—especially those divisions in which death and immortality are so strikingly descanted upon—were in strict congeniality with his own. In this work, as indeed in all his works, he engaged *con amore;* many of the designs were bold and striking, though in some of them he seems to have approached the very verge of propriety.

It is stated, by one who knew him well, that Blake painted and drew, not from imagination, but from *sight*. The objects, he conceived, painted themselves in his eye, and he saw them as distinctly as other men do objects of vision. An instance is given. He was once asked for a portrait of the renowned William Wallace. He sat down to draw it, but suddenly dropped the pencil; "I can't see him," he said, "that rascal Edward the First has got in between me and him." "That's lucky," said his visitor, "for I want a portrait of Edward too." Blake resumed his task, and drew Edward, when the great champion of Scottish independence again appeared, and was faithfully portrayed.

About the year 1804, Mr. Blake published an edition in small folio, of Blair's "Grave," with twelve remarkable illustrations, engraved from his own designs by several eminent engravers. The volume was beautifully printed, and dedicated to her majesty Queen Charlotte, in lines of peculiar simplicity and sweetness. One of the designs, a *fac simile* of the original, is now before our readers. It is taken from the closing portion of the poem, where Blair represents the good man, ripe in years and in virtue, fully prepared for death, and calmly waiting the summons "to purer air and softer skies."

——— "Sure the last end
Of the good man is peace. How calm his exit!
Night dews fall not more gently to the ground,
Nor weary, worn out winds expire so soft."

"Oh, how he longs
To have his passport signed, and be dismissed!
'Tis done, and now he's happy, the glad soul
Has not a wish uncrowned. Even the lag flesh
Rests too, in hope of meeting once again
Its better half, never to sunder more.
Nor shall it hope in vain."

The aged pilgrim, weary and bent down with years, is represented by our artist as about to enter "the house appointed for all living." But no bitter remembrances or fond regrets disturb him. He reflects

"'Tis but a night, a long and moonless night,
We make the grave our bed, and then are gone."

But the grave has no power to detain the breathless spirit. The decrepit, wearied body lies in the grave, and becomes a prey to "worms and corruption," but the spirit soars above the tomb, youthful, beautiful, vigorous, immortal, to enter the mansions of the blessed, there to remain in solemn and delightful anticipation of the period when it shall be reunited to its former partner, then made a "spiritual body," and "raised in incorruption, in glory, and in power."

"Thus at the shut of even, the weary bird
Leaves the wide air, and in some lonely brake
Cowers down, and dozes till the dawn of day,
Then claps his well-fledged wings, and bears away."

Mr. Blake's illustrations of the book of Job—which he modestly termed "Inventions"—are considered as the noblest of his works. One of his biographers says, "In his 'Inventions' for the book of Job, he pictures the man of Uz sustaining his dignity amid the inflictions of the devil, the reproaches of his friends, and the insults of his wife. The Scripture overawed his imagination, and he was too devout to attempt more than a literal embodiment of the most wondrous history ever unfolded. Blake goes step by step with the narrative; always simple, and often sublime, and never burdening the text by the exuberance of his fancy." One of his delineations is very remarkable. It is where Elihu stands up to rebuke at once Job and his friends. The scene is night, and between the great stars which are seen shining on the left side of the picture, and Job and his friends who are sitting with downcast looks, stands up Elihu, a young and noble-looking orator, pointing to the heavens, and with an attitude of unspeakable grace and dignity, addressing the humbled and prostrate patriarchs.

With all his genius, and notwithstanding his plain and economic habits, old age found Mr. Blake in somewhat straitened circumstances, though cheerful, and independent in spirit. The fact is, he worked for a world that did not greatly sympathise with his fancies, noble though they were; and hence the sale of his publications realised but little beyond a bare remuneration. As has often proved the case, both with poets and artists, his works have long since found their value in the market: most of them have become scarce, and are now bought up at prices double and treble those at which they were originally published.

Some interesting incidents are related in connexion with his deathbed, where he was watched over by a faithful and affectionate wife, who had been his companion for nearly half a century, and who had then, like himself, become old and feeble.

"He had painted a picture which he called, 'The Ancient of Days;' and it was such a favourite with him, that three days before his death he sat bolstered up in his bed, and tinted it with his choicest colours, and in his happiest style. He touched and retouched it, held it at arm's length, and then putting it from him exclaimed, 'There, that will do, I cannot mend it.' He saw his wife in tears—she felt that this was to be the last of his works. 'Stay Kate,' said Blake, 'keep just as you are; I will draw your portrait, for you have ever been an angel to me.'" She obeyed, and the dying artist made a fine likeness.

"On his deathbed he lay chanting songs, and the verses and the music were both the offspring of the moment. He lamented that he could no longer commit these 'inspirations,' as he called them, to paper. 'Kate,' said he, 'I am a changing man; I used to rise and write down my thoughts, whether it rained, snowed, or shone; and you arose too and sat beside me—this can be no longer.'"

William Blake died in a garret in Fountain-court, Strand, August 12, 1828, being then seventy-one years of age.

The lines of dedication, to which we referred above, are as follow:—

TO THE QUEEN.

The Door of Death is made of Gold,
That mortal eyes cannot behold;
But when mortal eyes are closed,
And cold and pale the limbs reposed,
The Soul awakes, and wondering sees
In her mild hand the golden keys:
The Grave is Heaven's golden gate,
The rich and poor around it wait.
Oh, Shepherdess of ENGLAND's fold,
Behold this gate of pearl and gold!

To dedicate to England's QUEEN,
The vision that my soul has seen,
And by Her kind permission bring
What I have borne on solemn wing
From the vast regions of the grave,—
Before her throne my wings I wave,
Bowing before my Sovereign's feet;—
"The GRAVE produced these blossoms sweet,
In mild repose from earthly strife;
The blossoms of ETERNAL LIFE!"

THE FLOATING GARDENS OF CASHMERE.

EVERY person who has travelled by book or map, or who has studied the nativity of shawls, must have heard of Cashmere—the beautiful valley around which tower "the hills of goats," and in which the flowers and fruits, the trees and other plants, with lakes and flashing rivers, revive thoughts of beautiful Eden, and which also claims to itself the name of the "Indian Paradise." In this valley the roar of the tiger is never heard, neither the howl of the jackal; the mountain goat, with its silken wool, browses unmolested in the little grassy glens, and the cattle low on the plains without fear of beasts of prey. One hundred thousand beautiful villages stand on the bosom of this magnificent natural amphitheatre, and these are peopled by men and women who are ingenious, and are said to resemble Europeans more than any other Asiatic nation.

The capital of the province of Cashmere is also called by the same name. This city is situated in the midst of numerous lakes, which are connected with each other, and with the river Vedusta, by numerous little canals—which canals, again, are only divided from each other by narrow stripes and insular pieces of ground. These lakes are not allowed to lie in passive beauty for poets only to sing about, and for the sun to exhale; upon their surface are *floating gardens*, and in these gardens melons and cucumbers thrive like mushrooms in a hundred years' old pasture-field. Cashmere is frequently inundated during the rainy season; and this frequency of inundation was considerably increasing, in consequence of the lakes becoming more shallow and superficially extensive. The spread of the water, by diminishing the arable land, set the wits of agriculturists to work, and necessity, that mother of invention, developed a plan of floating gardens. Numerous aquatic plants spring from the bottoms of the lakes, and cover their surface with a mantle of green; the boats traversing the lakes keep on tracks, and thus the yearly growth of sedges and other plants is allowed to come up and mingle with the old growths undisturbed. The gardener then cuts the plants about two feet below the lake's surface, and thus completely separating them from their roots in the bottom of the lake, he erects on them his melon floats. When the plants are separated from their roots, they are closely pressed together. The heads of the sedges and reeds are next cut off and laid on the top of the floating beds; and above this, again, is laid a thick coat of mud, which gradually sinks into the mass of matted stalks. These floating beds, perhaps two yards in breadth, are retained in their positions by willow-stakes, which, being thrust through the floating beds into the mud of the lake, admit of the gardens rising and falling according to the ebb or fulness of the waters. The gardeners then go out to the lake in boats, and thrusting long poles in among the reeds at the bottom, they twist them round several times, and when the plants become sufficiently attached, they drag them from the lake and attach them to the melon-beds. These reeds are then formed into cones about two feet in diameter at the base, and, rising to about the same height, they terminate at the top in a hollow, which is filled with fresh soft mud, and sometimes wood-ashes. These cones run in double rows down each side of the float, and are distant from each other about four feet. Previous to this preparation of the beds, the farmer has raised cucumber and melon plants under mats; and when they have struck four leaves, he places three in each cone, and then his labour, except in gathering the fruits, is completed.

The general depth of the floating gardens is about two feet, and in breadth they average from six to seven feet. The season for cultivating these terraquatic gardens begins in June, and ends about the middle of September. The plants thrive most luxuriously, few ever dying, and the fruits are most abundant; for eight days, which may be termed the extent of the melon harvest, perhaps thirty fruit from each plant, or from ninety to a hundred in all, may be seen clinging round a cone. The melon seeds are obtained from Baltistan, and the first year yield fruits of from four to ten pounds' weight. If the seed of the fruit grown at Cashmere is sown, the quality of the melon is finer, but the fruit seldom exceeds three pounds each in weight. The melon is a most healthful article of food, and it is remarked of those in Cashmere who do not indulge in it to excess, that they become fat during the fruit season, and horses exhibit the very same appearance. There are about fifty acres of these fruits cultivated in Cashmere; and early in the season full-sized cucumbers sell at about three for a coin valued at about a halfpenny; but as the weather becomes hotter, and ripens them very quickly, even twenty may be obtained for this sum. It is calculated that every cone yields a money return of about eighteen pence; the labour, seed, and import amount to about sixpence a cone, so that these floating beds are not unprofitable objects of culture.

THE BORGHESE PALACE AT ROME.

THE Borghese palace, which must not be supposed to have any connexion with a town of that name, stands on the site of the ancient Campus Martius, near Ripetta, between the Corso and the Tiber, almost in the middle of a triangle formed by the Piazza del Popolo, Colonna, and Navona. We pass in front of the façade when proceeding down the street which leads from the Spanish square to the bridge of St. Angelo. The foundation of the building was laid in 1590, by Cardinal Peter Deza. He was born at Seville in 1520, and had filled the offices of inquisitor, civil magistrate, and captain-general of the kingdom of Grenada, all at the same time. He was raised to the cardinalate by Gregory XIII., in 1578, and then came to live at Rome, where he took part in the election of seven popes, and presided over the tribunal of the inquisition. The plan of the magnificent palace, which afterwards came to bear the name of Borghese, was the work of Martino Sunghi, the elder. He was born at Milan, and was for a long time a stonecutter. He built the Tower of the Winds in the palace of Monte Cavallo, the church of the Fathers of the Oratory, that of San Girolamo degli Schiavoni, and the dome of the Capitol. He also restored the

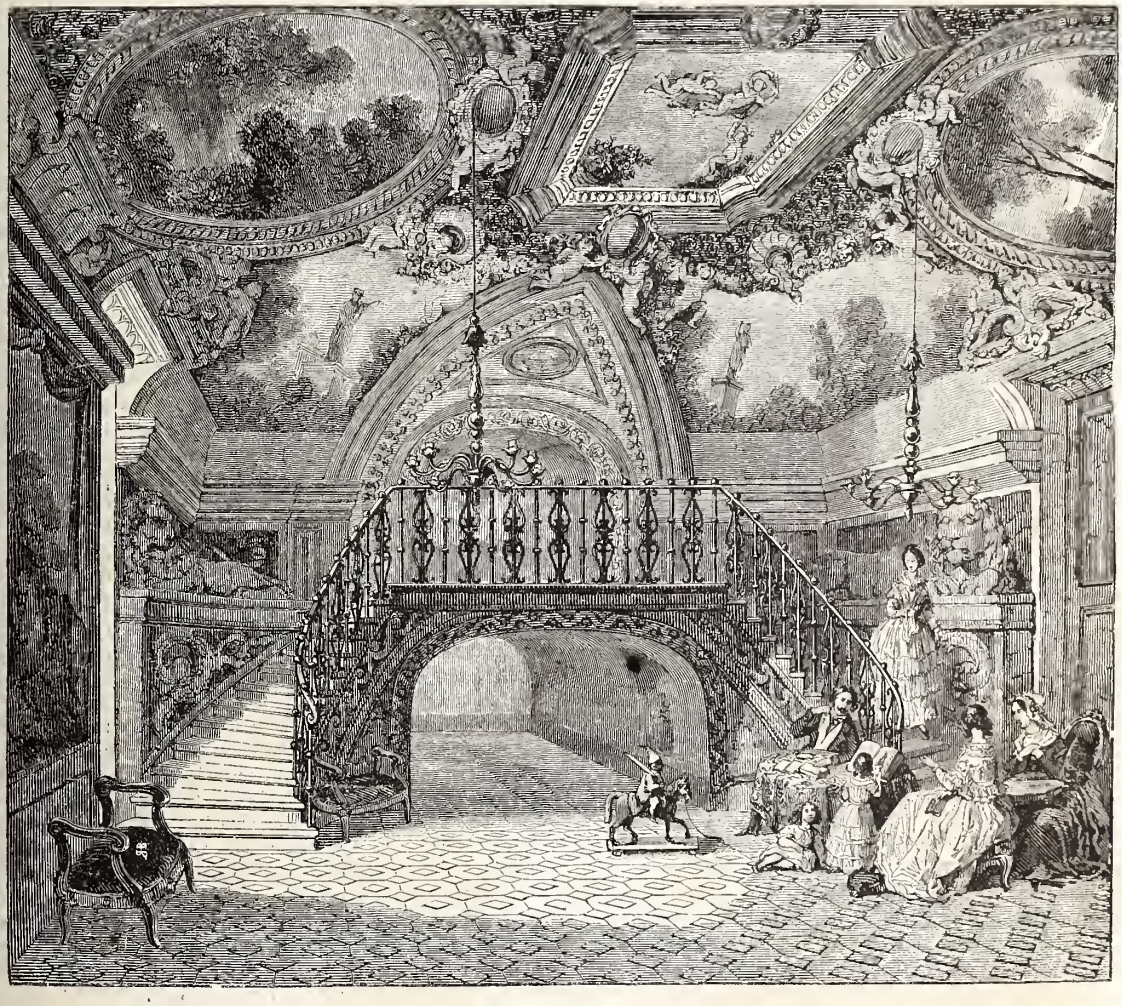


AN APARTMENT IN THE BORGHESE GALLERY. DRAWN BY FRAPPAS AND FREEMAN.

In this drawing some of the finest paintings placed in different parts of the Gallery are brought together:—1. Near the window, the "Sibyl," by Guerchin.—2. A Dead Christ, by Vandyke.—3. Julius II., by Raphael.—4. Over the door, "Sacred Love" and "Profane Love," by Titian.—5. Cæsar Borgia, by Raphael.—6. A Madonna, by Andrew del Sarte.—7. "The Burial of Christ."—8. "Diana Hunting," by Domenichino. The paintings on the ceiling are by Eminigildo Costantini. Many of the paintings, as the Sibyl, the Burial of Christ, and Diana Hunting, which, like almost all the others, turn upon hinges, are presented in such a manner that they can be seen by the reader.

church of Santa Maria at Transtevera, and the palace of the dukes of Altemps at Apollinara.

The palace of Cardinal Deza was finished by Flaminio Ponzio, about the year 1610, under the pontificate of Paul V., the most illustrious member of that great family of Borghèse, originally from Sienna, a scion of which married the sister of Napoleon. The general arrangement of the building has led to its receiving the name of *Cembolo di Borghese*. The court is square, and of splendid appearance. All around are arcades, supported by ninety-six columns of oriental granite, forming on the ground-floor, and on the first-floor fine porticoes ornamented with colossal statues of Julia Pia, of Sabina, and Ceres. The two staircases are worthy of notice; the smallest is spiral, with isolated columns. The two state apartments, that of winter, and that of summer, are decorated with paintings, tapestries, and statues in the costliest and finest marble. Twelve rooms on the ground-floor are open to the public, and contain one of the most splendid collections of paintings in the world. One of these is divided into two compartments, containing on one side figures by Ciro Ferri; on the other, flowers by Stanchi. In the suite also are busts of the twelve Cæsars. The room represented in our engraving is at the bottom of the palace. The paintings in fresco which adorn the ceiling are by Giovanni Francisco, a Bolognese. It is impossible to give a proper idea of the freshness and elegance of this splendid apartment. The double staircase leads to a glass gallery, from which there is a view of the Tiber.



A ROOM IN THE BORGHESE PALACE.

The paintings in the Borghèse palace are contained, as we have already said, in ten or twelve saloons, any one of which taken at random, would form a collection worthy of a great city, and sufficient to form a large fortune for a private individual. Still, if a choice were allowed, we might hesitate between two or three, in which some of the greatest works of the great masters are found, and which may fairly vie with the Vatican or the Pitti gallery. In one of these is the "David" of Giorgione, the rival of Titian, and sometimes superior to him; beauty, youth, and the joy of triumph, shine resplendent in the features of the conqueror, who is brandishing in triumph the bloody head of the giant; also the portrait of "Cæsar Borgia," by Raphael. Raphael never depicted life with more power than in this painting. Borgia is dressed in black, and the figure of the odious monster seems to detach itself from the sombre black ground, and traverse like lightning the three centuries which have elapsed since his death. His features, delicate but vigorous, seem to breathe the most elevated intelligence, or rather genius, intellect, and nobility. There is a faithful copy of this splendid work at Paris, in the collection of M. Ernest Legouvé. It is interesting to compare it with another portrait of Cæsar Borgia, by Leonardo da Vinci. There was also a "Danaë" by Correggio, a fine composition exhibiting all the grace and sweetness for which the painter was distinguished; "Diana Hunting," and "the Cumæan Sibyl," by Domenichino; "the Three Graces," "Sacred and Profane Love," by Titian, and a portrait of his wife, representing "Judith." Besides these, may be seen "the Descent from the Cross," and a "Madonna," by Perugino; "Two Apostles," by Michael Angelo, the draperies of which recall the Athenian style; a "Fornarina," by Romano, a good portrait, but by no means equal to that of the same person by Raphael, which is preserved in the Florence Gallery. The difference between genius and

talent, between master and pupil, is nowhere so clearly displayed; of the two beauties which Raphael has portrayed in the Fornarina, Romano has perceived only the less. There are many paintings also by Bellino, Palma the elder, Garofalo, and Pierino del Vaga; a "Suzanna," by Rubens, the only foreigner, except Vandyck, whose works are admitted amongst those of the Italian masters. Some works of Andrew del Sarte, and of the Caracci; "the Four Seasons," by Albano; a "Circe," the *chef d'œuvre* of Dossi Dossi; "the Adoration of the Wise Men," by Bassano, displaying wonderful knowledge of the principles of the chiaroscuro. "Lot and his Daughters," by Gerard; and a crowd of others, which our space will not permit us even to name. It is enough to say that they form a collection unrivalled in value and extent. It is positively bewildering to traverse those long and gorgeous galleries, surrounded on every side by so many of the most glorious achievements of the grand old masters, displaying all the differences of their genius, style, and colouring,—a perfect *mélange* of beauty.

A VISIT TO MESSRS. SMITH AND BABER'S FLOOR-CLOTH MANUFACTORY.

Many a visitor to the Crystal Palace will have noticed, as he made his way thither on foot, or on omnibus roof, a tall, square, tower-like building, which is visible from between the trees for a great distance, and which stands high above all the surrounding houses. As he neared the south transept entrance of that wondrous edifice, which the Goths and Vandals of the nineteenth century have actually allowed to be pulled down, he would necessarily—if his thoughts were not too much occupied for his eyes to observe—take note of the elegant building to which that tower belongs; and if his time were not devoted to a much more important kind of sight-seeing—as, of course, it would be—an hour or two might have been very profitably spent in walking through the floor-cloth factory of Messrs. Smith and Baber, to which the tower aforesaid forms a very necessary appendage. But as during those six busy months of 1851—"the like of which" was never seen before in the world's history—each visitor to the metropolis was too full of the *Great* Exhibition, and the scores of *little* ones which opened their wide doors and invited him to enter, to pay much attention to the mere ordinary features of London industry,—it remains for us to show him what we can of the sights he passed so heedlessly. Thus, then, if he will take us for a guide, we will endeavour to initiate him into the mysteries of that great tower; and, as upon other occasions, lead him step by step through the processes of the factory which we have chosen for our present visit.

We are standing before the rather elegant rotunda which forms the entrance hall to Messrs. Smith and Baber's premises. Let us look around. The immediate spot is known as South-place, Knightsbridge. Opposite to us are the unsightly walls of the Knightsbridge barracks, while a little further west we have the aristocratic residences about which we have heard so much in connexion with the removal of the Crystal Palace. Knightsbridge is a hamlet belonging to the parishes of Kensington, Chelsea, and St. Margaret's, Westminster. It was formerly called Knightbrigg, or Neytebridge, and probably derived its name from the manor of Neyte or Neate, as Hyde-park procured its cognomen from the manor of Hyde, both of which belonged to the crown. In the thirty-fifth year of Edward III., it was ordered, according to Strype, that "all bulls, hogs, oxeu, and other gross creatures slain for the sustentation of the city, should be led as far as the town of Stratford on the one part of London, and the town of Knightsbrigg on the other, and there be slain;" an order which plainly proves that our ancestors were wiser in their generation, in at least one respect, than we in ours, because they would allow no slaughter-houses to pollute the air of their dwellings. A vivid glimpse, however, of the state of society in the "good old times," is afforded us by a paragraph from the work of Norden, the surveyor and court historian, as quoted in Ellis's Introduction. Speaking, in 1593, of the bridges in Middlesex, he mentions that of "Kingesbridge, commonly called Stonebridge, near Hyde-parke-corner, wher I wish noe true man to walke too late without good garde, unles he can make his partie good, as did Sir H. Knyvet, knight, who valiantle defended himselfe, ther being assaulted, and slew the master theefe with his own handes." We live in less doubtful times, happily, and may pass by the high-road from London to Oxford without fear of meeting any more dangerous "knight of the road," than a vagrant haymaker or a strolling tourist. Knightsbridge, though so "highly genteel" a neighbourhood in our day, was formerly famous in a bad sense of the term. During the last and previous centuries it possessed several notorious taverns, more than one of which is noticed by the older dramatists. Otway, in the "Soldier's Fortune," speaks of the "Swan at Knightsbridge" as a "confounded house;" and in the memoirs of Sheffield, duke of Buckingham, we read of his "skulking with a friend in an old inn" at Knightsbridge, previous to a hostile meeting between him and the celebrated earl of Rochester, "like a couple of highwaymen." The "Swan" is still in existence; it is situated a little westward of Sloane-street on the same side of the way. Tom Brown, the wit; who died in Aldersgate-street in 1704, and was buried in the cloisters of Westminster Abbey, mentions the Swan; and in the "Tatler," No. 259, as well as more than once in the "Diary" of the immortal Pepys, two other taverns of bad memory, the "World's End," and the "Old Fox" are made the subject of remark:—"31st May, 1669—Thence to the 'World's End,' a drinking-house by the park; and there merry, and so home late." Though the "Old Fox," under the name of "The Fox," still exists, near Albert-gate, our men of fashion no longer make merry within its walls. In 1744, William Lane and Samuel Trotman were executed at the Tyburn-tree,—the "deadly never-green" which stood on the site of No. 49, Connaught-square, on the other side of the park—for "robbing the Knightsbridge stage-coach." Near the Prince of Wales's-gate stood the famous "halfway house," which was pulled down in 1846, at a cost of £3050; a little way past the entrance to Kensington-gardens are the oldest nursery-grounds in London, now belonging to Messrs. Gray, Adam, and Hogg; at No. 14, Queen's-row, Knightsbridge, died the celebrated actor and author, Murphy; and in a house in Pitt's-buildings, Kensington, not a mile from where we stand, the great sir Isaac Newton breathed his last.

But we must stop, though we have by no means exhausted our knowledge of the neighbourhood; and having stayed so long before the door of the factory, we will e'en take courage and step over the threshold. Once inside the circular show-room—which forms a kind of entrance-hall to the premises, and hanging on the walls of which are various patterns of floor-cloth, and ranged on either side of which are other similar patterns in rolls as large round as the mainmast of a frigate, and at the south end of which are the counting-houses and private offices of the firm—we introduce ourselves to one of the partners—a gentlemanly young man, who at once accedes to our request—and proceed to make the circuit of the factory. It must be understood that the editorial *we* in this case has a rather wider signification than usual, and includes the artist and his assistant, and the reader's very humble servant, the writer.

Passing through a doorway at the extremity of the rotunda, we come into the largest room in the factory. It is called

THE DRYING ROOM.

In this apartment, which is about seventy feet in width, by a hundred and thirty in length, are exhibited numerous finished floor-cloths hanging from the roof to dry. Immediately facing the visitor is the splendid specimen of workmanship which was shown by this firm at the Great Exhibition. It is indeed a magnificent evidence of the skill and judgment which are often called into operation in the production of our ordinary domestic appliances; and it may be considered quite a triumph in the way of floor-cloth printing, both as to the intricacy of pattern and brilliancy of colour. We pass from the contemplation of this great piece of mosaic-work, however, to gaze upon the

objects around us. Along the walls, and from the roof high over our heads, and occupying the entire right side of the room, are depending finished floor-cloths of all kinds of patterns, and in all states of dryness;—here a piece which has but just left the printing room above, and is coming down slowly, foot by foot, to meet its fellows in the floor below, by means of ropes and wooden rollers; there a large-patterned, gaily-painted piece like a Turkey carpet, which having hung its appointed four or six months, is being hauled down to the ground and rolled up for exportation: again, a piece in black and white diamonds, like the marble flooring of an Italian mansion; and all along, from end to end of the great room, floor-cloths in every state of finish and of every variety of dimensions—from the narrow stair-cloth to the covering for a club-house hall. It is a strange sight, like no place that we have seen before. Stop, like some place. To be sure;—it is not Smith and Baber's Drying Room, but it is "behind the scenes" at the Great National Theatre in Vinegar-yard. Of course it is, and those men unrolling a huge piece of floor-cloth on the ground are the assistants of Messrs. Grieve and Telbin, preparing the "flat" for the grand *finale* in the "Corsican Uncles;" and those two young fellows unrolling a wide bale of canvas must be stage carpenters, and those half-dozen men in shirt sleeves, who are busy with the unrolled scene upon the ground, must be supernumeraries; and those two carrying the ladder must be the porters; and that very "seedy" looking individual in black must be the leader of the "young gentlemen;" and that other one must be the ballet-master examining the state of the "traps;" and that great oblong deal box can be nothing else than a stage storm, all ready to pour over the devoted city. The very place; scenes, ropes, paint-pots, gas-lamps at the sides, sky-borders, wings, glimmering patches of light from the roof, musty, damp, white-leady kind of smell, and all. Everything but the noise and the dust.

No; it cannot be "behind the scenes," after all, for we see no dirt or pots of porter on the floor. A word from our conductor breaks the spell, and we are again at Knightsbridge, all eye and ear for what is going forward.

Floor-cloth—in French, *Toile cirée pour le planchir;* and in German, *der Fuszdecke*—of course it is, and nothing else. Our thoughts wander back a moment to the time when clean rushes strewed the palace floors of Cardinal Wolsey, and tapestried hangings concealed the bare unplastered walls of kings' houses. We think how our ancestors made shift with at best a coarse woven fabric for their ordinary living rooms, and boasted—the richest of them—a small Turkey carpet in the centre of their best apartments; when gradually a rough home-made carpet covered the newly-introduced wooden floors; when highly-finished and well-polished joiners' work took the place of these; till at last the carpet came to be a necessary even in the houses of the "common people." The consumption of carpets in Great Britain, says a clever writer, was hardly deserving of notice as a branch of manufacture till about the middle of the last century—so slowly do the elegances of life begin to be appreciated. And although now so essential to our warmth and comfort, a few generations since carpets were only partially used even in the mansions of the rich. A few manufactories, of which that at Wilton was the most important, existed in different parts of the kingdom; and at Kidderminster, which is now the principal seat of the trade, and where at least four thousand persons are employed in different branches, the carpet manufacture did not commence before the early part of the eighteenth century. We doubt whether at the commencement of the nineteenth century one-fourth of the present number of carpets was manufactured. Oh, who would sigh for the "good old times?"

We have seen the floor-cloth in its finished state; it is necessary now that we should endeavour to understand the various steps whereby that perfection is attained. As our readers may be probably aware, the body or foundation of the floor or oil cloth is composed of coarse canvas, thickly coated over with paint on *both* sides, on the *front* or upper side of which a pattern is impressed by means similar to those employed by the paper stainer. This canvas, which is made in widths of from eighteen to even thirty feet, is produced chiefly in Scotland, by manufacturers, whose chief business is confined to weaving cloths of these extraordinary dimensions. From Dundee, however,—a town in which the production of coarse sail-cloths, sackings, wide sheetings, and other articles in flax and hemp, from the staple manufacture,—comes the principal supply. All modern floor-cloths are made in one piece without a seam, and the looms in which such wide canvases are made have therefore to be constructed expressly for them. "As the weft or width of the cloth extends to six or eight yards, of course the shuttle has to be driven this distance at each successive traverse of the weft thread. At first sight, these cloths have more the appearance of hemp than of flax, but hemp is used only to a limited extent, because it is found not to retain the colour so well as flax; the latter is therefore the material generally employed. The canvas has a fineness of about sixteen or eighteen threads to the inch, and a degree of stoutness which may be indicated by saying that a square yard weighs about twenty-two ounces." We will suppose the canvas to have been shipped at Dundee and to have arrived at the warehouse of the London manufacturer in the form of compact bales nearly three feet square, each bale containing canvas of one particular width, and weighing about five hundred weight each. The ordinary kinds of canvas for floor-cloth are regulated somewhat in this fashion: "One kind measures a hundred yards in length by six in width, another a hundred and eight yards in length, by seven in width, and a third a hundred and thirteen yards by eight." Sometimes old Brussels carpets of good quality, which have lost their colour, have been used instead of canvas; and in some of the better kinds of floor-cloth the material for the foundation is of so fine a quality, so completely coated with paint, and brought to such a smooth surface as rather to resemble the canvas for the artist than for the mechanic. Having premised thus much—and after having glanced into various rooms set aside for the storing of canvas, colours, printing-blocks, &c.,—we will retrace our steps, and pass from the Drying into

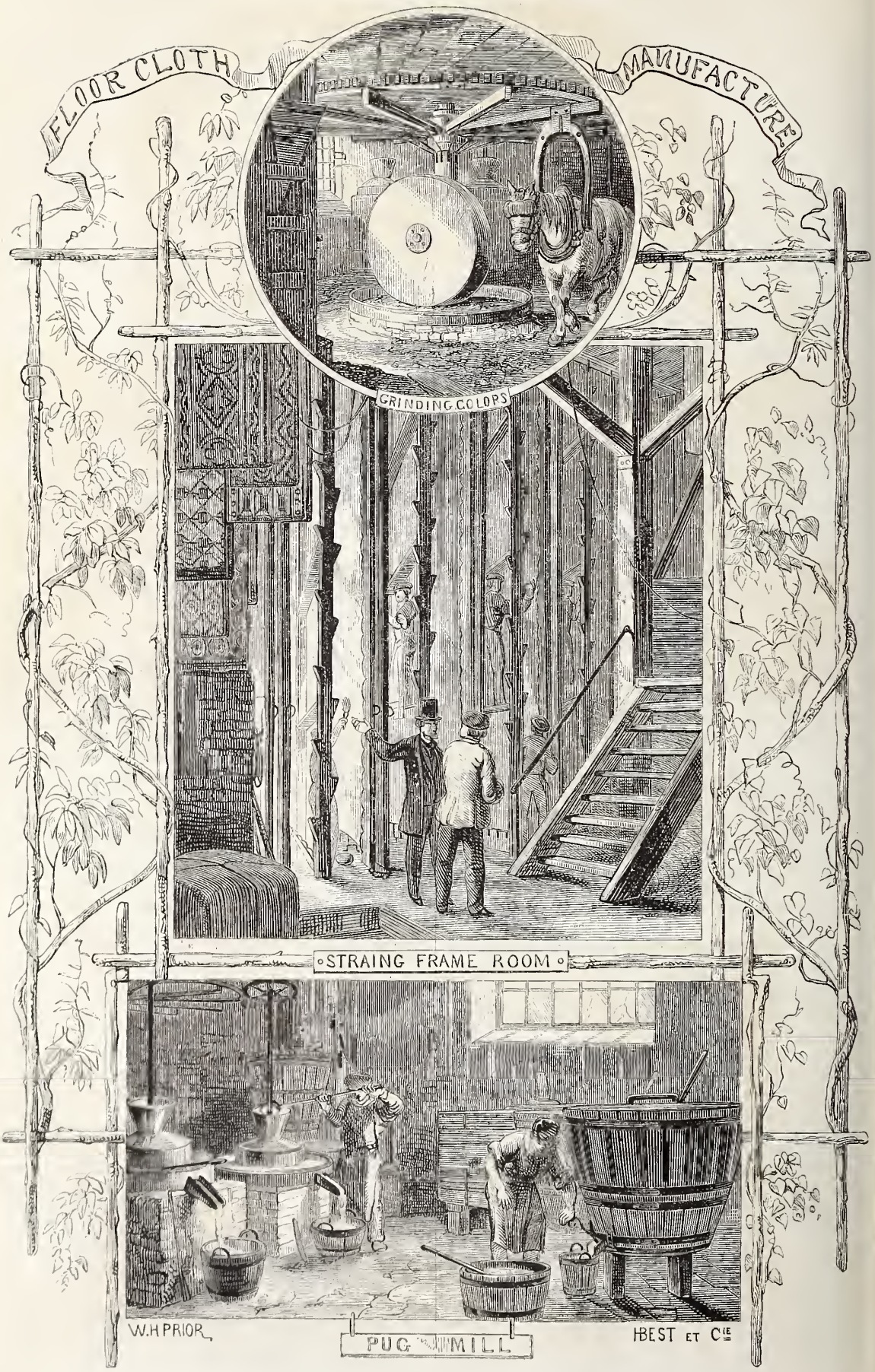
THE COLOUR ROOM.

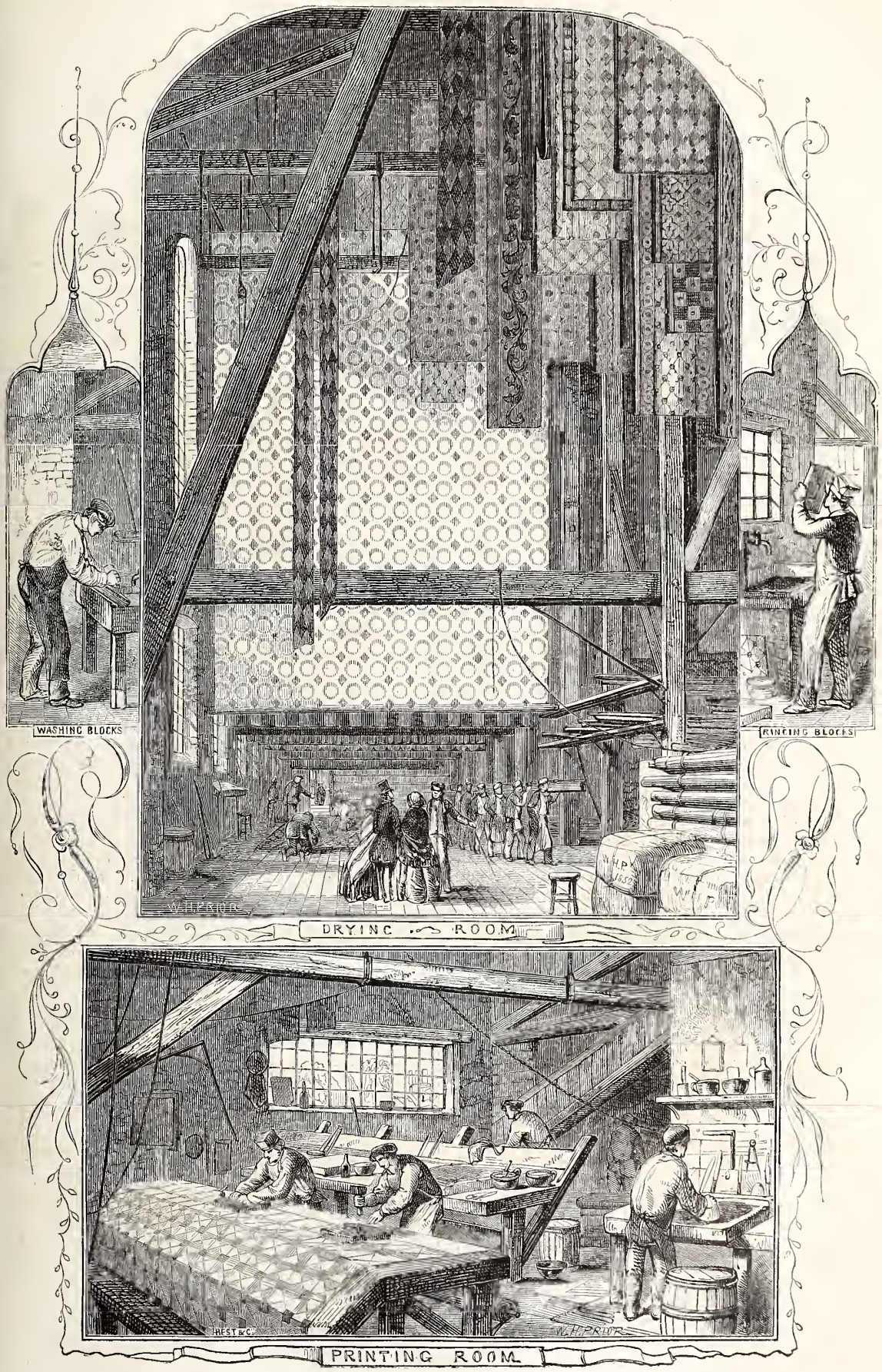
Down a few steps, and we are there. This apartment is rather useful than ornamental. In the centre, as seen in the engraving, is an immense horizontal cog-wheel moved by horse-power. The revolution of this wheel sets in motion, by means of other cogs,—the action of which the mechanic will readily understand, though it would take long to explain,—various grinding stones set on edge for grinding the colours. In this room all the paint used in the after processes is prepared; and behind it is a large open court or yard in which are placed several great cisterns of linseed oil, capable of containing, together, upwards of fifty tons. Leaden pipes conduct the oil from the cisterns to the different vessels in the colour-room. Beyond the oil yards are a smith's and carpenter's shop for the making of the printing blocks—of which we shall afterwards have to speak—and for the repairs necessary to the different parts of the apparatus employed. Close to the colour-room is another apartment in which is a "pug mill" for the mixing of the colours previous to use. Vats, tubs, pails, iron ladles, labour-stained workmen; and a strange odour—an odour of a newly-painted house and a soap factory and a tallow-chandler's shop and a close room and an oil warehouse in the London Docks, all mixed into one,—are its principal characteristics. The principal ingredients used in the paints are the ochres, chromes, prussian blues, verditer, vermillion, and other earthy pigments; and as "dryers" or turpentine, are not used in the mixing, the floor-cloth has to remain a long time hanging—usually from four to six months—before it is fit for use. The paint used is of a much thicker and stiffer kind than that required for other purposes—so as to ensure the exquisite durability to the cloth.

We return to the Drying Room, and, ascending a few steps, come to the

STRAINING-FRAME ROOM.

Here a new scene entirely awaits us. At first we can discover nothing but a great flat yellow superficies of canvas stretched out before us; but, on further inspection, we perceive that the room—a very large and very high one—is filled with similar flats of canvas stretched on vertical frames which extend from roof to floor and from wall to wall. And so full is the room with these frames, each with a canvas, stretched, or being stretched, upon it, that space is only left between each for a man to pass. Our engraving conveys but a faint idea of the appearance of this apartment; but let the reader conceive some couple of dozen or more


FLOOR CLOTH
MANUFACTURE.
GRINDING COLOPS
STRAING FRAME ROOM
W.H PRIOR.
PUG MILL
HBEST ET Cie


WASHING BLOCKS
PRINTING BLOCKS
DRYING ROOM
PRINTING ROOM

of his lady-acquaintances' embroidery-frames, with the canvas stretched upon nearly all of them, ranged side by side with but an inch of space between each, and a slender scaffolding partly occupying that space, and the whole enclosed within four walls and a roof, and he will have realised a pretty accurate idea of the Frame Room of a floor-cloth factory.

Having formed some notion of the appearance of this room from his mind's-eye model, he has only to enlarge the idea by fancying each of these frames to be from sixty to seventy feet long, by twenty-four or thirty feet high, and he will have the place before him. Some frames, however, are occasionally made as much as ninety feet long.

We will now endeavour to explain the process of stretching the canvas on the frames. When a piece of canvas is about to be painted, it might be supposed that it was laid flat on the ground, pulled, and perhaps nailed at the edges to stretch it smooth, then painted, and, when dry, painted on the other side. A very different process is, however, adopted in practice. A party of men unroll the canvas, and lay it down pretty evenly on the floor of the Drying Room. They then take a wooden roller rather longer than the width of the canvas, and about five inches in diameter, and lay it down on end of the material. On this roller the whole of the canvas is coiled, and in that state it may be readily carried from place to place. The roller, with the canvas wound round it, is then erected on end, and hauled into the frame-loom by means of pulleys. Here an iron point or gudgeon is dropped into a hole in a moveable carriage, and the roller is moved to its place in a very simple and ingenious manner. Two or more men hold the upper end of the roller; while others, standing on the floor of the room, twenty or twenty-four feet lower than the rest, guide the carriage in which the lower end of the roller rests. The roller is thus brought to its proper position coincident with one end of the frame to which the canvas is to be attached. This frame, like all the others, is formed of stout oaken beams,—two horizontal, to form the top and bottom, and two vertical, to form the ends or sides. The roller, being about the same height as the frame, and a small portion of the canvas being unrolled, it is easy to nail the edge of the canvas to one of the upright posts, thus forming the commencement of the stretching process. The carriage on which the roller rests is then wheeled onwards, the canvas unrolling as it proceeds, parallel with the frame. As it unrolls, the canvas is fastened temporarily to the top beam by means of a simple but ingenious contrivance called a "quickset"—a much more intelligible name than is often applied to working tools. The "quickset" is a kind of screw and nut, provided with a large hook at the top, and a small pointed hook at the bottom; the large hook catches hold of a rod lying at the top of the frame, which the small lower hook catches in the canvas. There is a hook by which it is carried up tightly to the upper beam of the frame, so as to keep the canvas nearly at its proper height; while the upper hook, by being able to move along the rod, suffers the "quickset" to move to the right or left as the canvas becomes stretched. This however, is only a temporary contrivance, used while the immense area of canvas is being adjusted to the four sides of the frame; but it is one of those ingenious adaptations which we see so often employed in the manufactures, and which could only have resulted from a steady observance of the object in view.

When the low-wheeled carriage in which the roller rests, has travelled from end to end of the floor, and the canvas has become wholly unrolled, and its upper edge temporarily held up by a number of "quicksets," the roller is entirely removed, and the second or remaining upright edge of the canvas is nailed to the other upright beam of the frame. It will be readily understood that if this beam were a fixture, it would be almost impossible to stretch the canvas with a sufficient tightness. But this beam is loose, and when the edge of the canvas has been nailed to it, two screws, one at the upper and the other at the lower end are brought into operation; and, by means of which the post is drawn outwards till the canvas has been brought to a proper degree of tension. And when we come to consider that the superficies thus stretched, sometimes contains nearly ten thousand square feet of canvas, we can readily imagine the force required in this latter process. When the vertical edges are properly secured, the upper and lower edges of the canvas are made fast and the quickset removed. By means of levers, chains, and hooks, this last operation is performed; and no drum-head is tighter than the canvas thus stretched upon the frames.

From the above rather technical description—for which we are in great part indebted to the description of Mr. George Dodd, who visited this factory about ten years ago—it will be seen that the stretching of the canvas, or "framing" as it is called, is a highly important part of the process. With our already acquired knowledge, therefore, the after processes are easily understood. Between each frame of canvas an apparently slight, but really strong, framework or scaffolding of wood is erected, on which the workmen stand to paint the stretched canvas. Access to the upper tiers is gained by means of ladders. The inequalities of the cloth are then carefully rubbed down by means of pumice-stone (the lava of volcanoes), and the

PAINTING PROCESS

commences. This may be dismissed in fewer words than we have used above. If we examine a piece of floor-cloth, we shall perceive that it is painted on both sides. The material having been made smooth and level by means of the pumice-stone, a solution of size is laid on it to prevent the paint from penetrating too far into the substance of the cloth, and to make a good foundation for the after processes. The workman, either standing on the floor, or mounted on the platform at various heights, according to the part of the cloth on which he is employed, then begins the painting. From his situation it is plain that he can paint the back of one cloth and the front of the other. But the paint itself, instead of being used in the ordinary way, is laid on with a kind of trowel, about a foot long and tapering towards the end; and with it, the workman proceeds something in the manner of a plasterer. In his left hand he holds a short brush, well filled with paint from the pot beside him, and with it he gives successive dabs on the cloth; while with his right hand, he spreads the thick paint, so left in patches, evenly all over the surface. In this way he proceeds with both sides of the floor-cloth, climbing from stage to stage of the scaffold—which is so arranged, that, standing on the one, he can reach the next above him, and so on—till the entire surface is covered with paint. The trowel-painting, however, is not sufficient for the front of the canvas; which previous to its being printed on, receives two coats of paint, laid on in the usual manner. But it is not till the back is perfectly dry, that the front, or upper side, is touched—a fortnight, at least, being required for the drying, according to the quality of the future floor-cloth. Thus the face of it receives a greater or less amount of labour in the preparation—the finer descriptions requiring, besides the "trowel colour," to be painted and rubbed down with pumice-stone, and painted again and again with the brush—the "brush colour." In the "good old times," when the exciseman was present at every stage of the manufacturer's labours, it was considered necessary for him to use certain private marks and colours for the back of the floor-cloth to distinguish his particular make of goods: these peculiar symbols are still continued, though excise restrictions have long been abolished.

The first coat of "brush colour" which is to form the ground of the future pattern, having been given to the face of the canvas, it is allowed to remain in its vertical position till it is dry enough to bear the operation of printing—a period of about two or three months. It is then unfastened from the frame, and transferred to a roller of about the same width as the canvas, whence it is hauled up to

THE PRINTING ROOM.

Of course it will be understood that the successive coats of paint have increased the weight of the canvas very considerably; great care is therefore necessary in bringing it into the printing room, lest it crack or become rubbed on the surface. When the roll of painted canvas is brought hither, the ends of the roller are put in iron sockets, so that the canvas can be unrolled and placed on the table to be printed; and as each yard receives the impressions of the printing blocks, it is lowered through a slit in the floor over rollers and horizontal poles into the drying-room below, where it remains till it is perfectly seasoned and ready for sale.

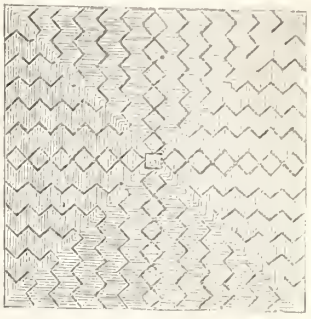
The process of printing is not unlike that of paper-staining, or the colour-printing invented by Mr. Baxter, each colour having a separate wood block. There is this difference, however, he-

tween the processes. In paper-staining the colours are printed *over*, and occasionally blend with each other — in floor-cloth printing each colour stands separately on the groundwork, one colour never mixing with another. The reason for this is, that the very thick nature of the paint employed would, if one colour were printed on another, render the surface very uneven. The actual operation of printing is simple in the extreme. The workman takes the necessary quantity of ink on his block, from a cushion on which the ink is ready mixed, and places it lightly in its place on the canvas. Holding the block by a leathern loop on the top with the one hand, he gives it a smart blow with a mallet which he holds in the other; and thus proceeds along the whole width till the cloth has received the impression of one colour. If the pattern consists of two or more colours, he is followed by another workman who, by means of "guide points" left in the patterns, is enabled to stamp another block so exactly in its place as to produce a continuous and harmonious design.

To render our meaning somewhat plainer, we must recapitulate a little. We will suppose a pattern to consist of five colours—a by no means unusual number. The background is, say a light drab. Upon each block is cut a device which corresponds with spaces left in the other blocks. If the green be printed first, the other colours follow in their order till the whole forms a finished pattern as shown in the diagram—no one colour interfering with the other. The right-hand figure, it will be seen, embraces all the others, and represents, as nearly as can be in black and white, the appearance of the finished floor-cloth. In this way half a dozen workmen, each with a block of a different colour, may work on one piece of canvas.

The cutting on each block is so nicely adjusted, that although several colours appear on one pattern, no one colour covers another, so that the whole when dry is of equal height. Thus the entire pattern is made up of five separate blocks, the whole forming one elegant design. Taste and ingenuity in this, as in calico-printing, are the necessary means of success. Whatever the pattern however, the method of transferring it to the canvas is the same. In some extremely rich carpet patterns, as many as ten or twelve blocks a re necessary.

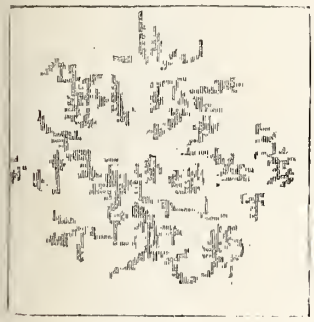
The first patterns in floor-cloth printing were produced by means of thin metal or pasteboard stencil-plates, in a similar way to that formerly applied to walls; but in 1754 it struck Mr. Nathan Smith, the founder of the firm, that similar blocks to those used in wood engraving might be advantageously applied to floor-cloth. If any of the wood engravings in the present sheet be examined, it will be found that all the white lines are produced by cutting away the wood from those parts. In this way Mr. Smith produced his first printing-block. It was a very simple affair, but it answered its purpose, and showed the practicability of the idea. Being inked and pressed closely on the prepared canvas, it was found to leave an exact counterpart of the pattern beneath. Of course the inventor was proud of his invention, and kept his plan of operations secret for many years—printing the patterns himself, and allowing none of the workmen to see how it was done.



First floor-cloth pattern.

But it came out in time, and other manufacturers adopted it; the original block is still, however, in the possession of the firm. The blocks at present in use are cut in a great variety of patterns. They are all one size—about fifteen inches square—and must, necessarily, be cut with the greatest nicety; for if one part of one block touched any portion of the pattern on another, a flaw in the design would be the consequence. Of course, the manner of producing the pattern on the block will be readily understood from inspection of the small engravings. When a finished drawing of the whole design is made, the separate parts are determined on, and the parts which are not to appear are carefully cut away. The several parts are made to correspond, and the workman is enabled to lay each block on exactly the right place by means of point-holes left in the design, which are afterwards filled up with the point of a brush, and brass pins at the corners of the block, the impressions of which are incorporated with the design. The blocks themselves are formed of two thicknesses of white deal and one of pear-tree, in which last the pattern is cut. The liability of the wood to warp is met by crossing the grains of the several layers. The paint used in forming the pattern is not so thick as that used for the foundation and back, though it is considerably thicker than that used in house-painting, and is almost deficient of turpentine.

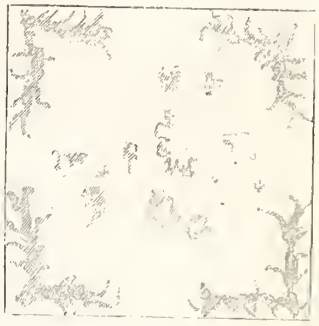
If we examine a piece of floor-cloth we shall find that it consists of a number of little square points, on each of which the print rises to a point. This appearance is produced by leaving a



Light green.



Dark green.



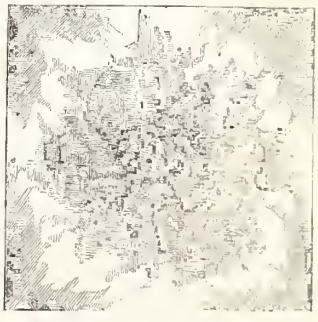
Yellow.



Red.



Black.

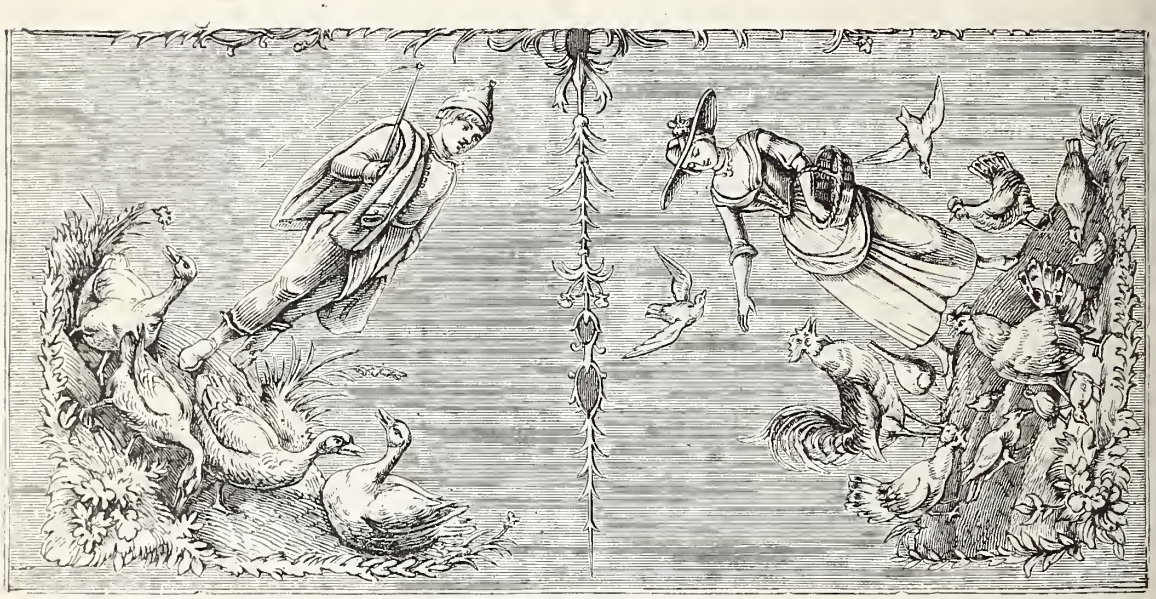


Finished pattern.

slight cavity in the surface of each point or "tooth" in the printing-block; and the purpose of this plan is to enable the printer to leave a larger surface of ink on the canvas—as it is obvious that if the surface of the block were perfectly smooth and level the ink could not be so equally distributed in consequence of the affinity between the wood and the ink. In the printing of floor-cloth for stairs, passages, &c., the canvas is cut into strips after it has left the "frame," and afterwards printed with such smaller blocks as may be necessary for the borders, &c.

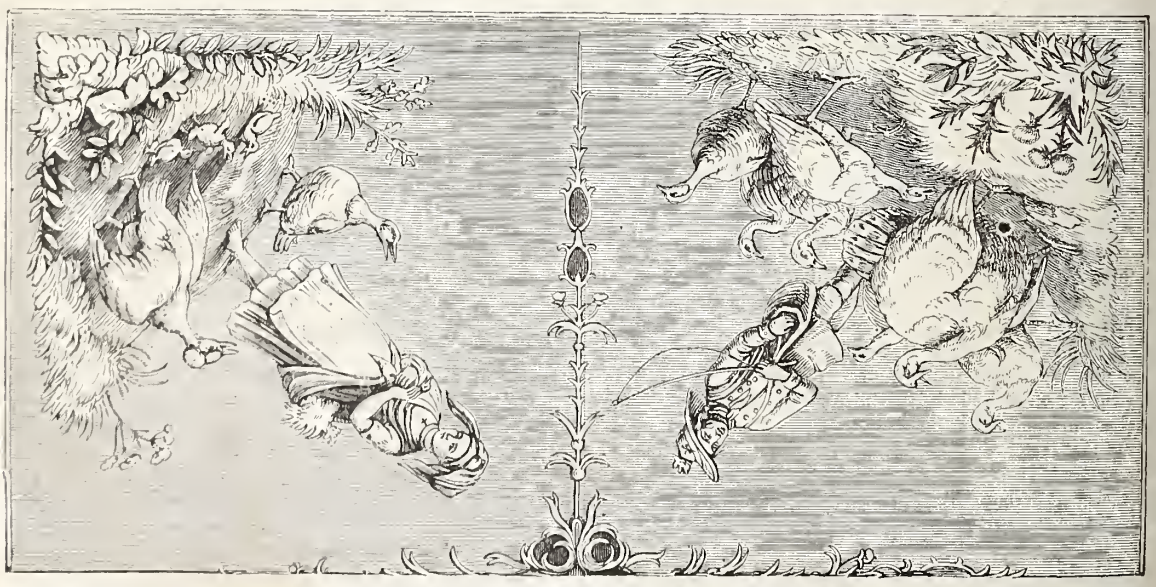
Having now visited every room in the factory, not even excepting the square tower,—which is used to hang pieces of floor-cloth of extreme length in, and from the windows of which a fine view of the surrounding country is obtainable, and from which we can catch a glimpse of the barbarous operation of pulling down the Crystal Palace, we descend to the Drying Room; and having thanked our courteous conductor, take our leave; more and more impressed with the idea that the free exhibitions of London are the most interesting after all.

DAMASK TABLE-CLOTHS.



The four accompanying engravings are taken from some remarkably beautiful damask table-cloths manufactured by Prœles, of Dresden. They are truly German in character, representing scenes from the chase and the poultry-yard. The figures are very natural, and the animals full of life and action; they exhibit that peculiar trait of German art which draws upon everyday life for its originals with the most perfect success.

The art of damaskeening linen and other stuffs was first discovered in Damascus, whence it takes its name, and afterwards spread through Greece and Italy over the whole of Europe. For a long time Saxony, Silicia, Bavaria, and Flanders, almost monopolised the trade, but since the French revolution Ireland has mad such progress, that she now stands at the head of all linen manufacturing countries. In Silicia there are no large factories, but the weaving is carried on by the peasants themselves, and, as is almost invariably the case where similar trades have been divided among many producers, they are very poor, and subject to great hardships.



In the neighbourhood of Herrnhuth every valley is dotted with detached houses where looms are at work; each cottage has its little bleaching-ground, and the hill-sides are covered with linen and yarn in various stages of progress.

Several years ago, the demand for the Silician linens almost ceased,—indeed, it had been gradually ceasing for some time,—and consequently the weavers were reduced to the most desperate misery and want. Their situation becoming known, a deal of interest was excited about them over Germany, and sums of



money were liberally raised for their relief. Freiligrath, the greatest of living German poets, wrote one of his most beautiful poems on the subject; a weaver-boy is supposed to have left his home with a bundle of linen, in the desperate hope of meeting Rübezahl, the protecting spirit of the Riesen-Gebirge; many wild legends are told of this Rübezahl by the superstitious



inhabitants, who still in many places firmly believe in his existence. We make the following extract from Freiligrath's beautiful poem:—

Green grow the budding blackberry hedges,
  What joy! a violet meets my quest;
The blackbird seeks the last year's sedges,
  The merry chaffinch builds her nest;
The snow has from each vale receded,
  It only clothes the mountain's brow.
I from my home have stol'n unheeded;
  This is the place; I'll venture now,
    Rübezahl

Hears he my call? I'll boldly face him:
  He is not bad. Upon this stone
My pack of linen I will place him;
  It is a right good heavy one,
And fine: yes I'll uphold it ever,
  I' th' dale no better's wove at all,
He shows himself to mortal never;
  So courage, heart! once more I call,
    Rübezahl

* * * *

Thus spoke the little weaver lonely,
  Thus spoke and cried he, weak and pale.
In vain: the casual wren only
  Flew o'er the old gnome-haunted dale.
Thus stood he while the hours passed slowly,
  Till the night shade dimm'd the glen,
And with white quivering lips said lowly,
  Amid his tears yet once again, Rübezahl!

ENGLISH COMMERCE IN THE THIRTEENTH AND FOURTEENTH CENTURIES.

NATIONS, like individuals, at an early period of their life, often make many fruitless efforts before they discover their true vocation. It might seem impossible for a people to mistake the direction given to their energies by the natural capabilities of their country; and there is, indeed, little doubt but nature will in the end vindicate its rights. The insular position of England, its many excellent harbours, its treasures of mineral wealth, its perseveringly industrious population, seemed to point out manufactures and trade as its natural occupations. Yet we find that it began its commercial career as a producer and exporter of *raw materials;* and that the sole object of early commercial legislation was to render it, as far as possible, altogether independent of foreign productions and manufactures.

The period we have selected for review comprises five reigns, those of Henry III., Edward I., Edward II., Edward III., and Richard II., and very nearly coincides with the thirteenth and fourteenth centuries, A.D. 1216—1399. Articles exported from England were at this time few. Large quantities of wool, produced in her fertile pastures, were sent to Flanders, and thence returned in the shape of fine cloth. Cloths of a coarser quality were manufactured at home. Sheepskins and leather were exported to different parts of Europe. The first mention of our island which we meet with in any ancient writer, is comprised in the fact that the Phœnicians came to Cornwall for tin; and both that metal and lead were at this time sent abroad from the west-country mines. In good years England exported corn; after a bad harvest, small as was her then population, she was obliged to rely in part on her neighbours. Occasionally, too, "British wine," the veritable juice of the grape, was exported, though we cannot imagine it could have been acceptable to the dwellers among the more generous vines of France and Spain.

We owe our chief knowledge on these points to the fact, that, in the period under consideration, Customs' duties were paid on goods which quitted as well as on those which entered the kingdom. Then, as now, Parliament granted supplies in the shape of a fixed tax on certain commodities, though exportations as well as importations were subject to it. The question is now being agitated whether customs, even if collected under regulations as little vexatious to the merchant as possible, are not a hindrance to trade, and an inconvenient way of raising money for the expenses of government. Yet in the thirteenth century the Legislature, having regard to ease of collecting, imposed such restrictions upon foreign trade, that it is wonderful that English commerce was not stifled in its birth. The goods upon which duties were anciently paid—wool, sheepskins, leather, and afterwards tin—were called the *staple* goods of the kingdom. And the word staple properly meant a place where alone such goods might be bought and sold, and the duties accruing to the king collected. For instance, in 1313 Edward II. enacted that all staple goods exported to Holland should be carried to Antwerp, and there disposed of. This was a regulation objectionable enough in itself, yet made, by alteration, ten times more so. No sooner had merchants accustomed themselves to the exigencies of the Antwerp market—probably established agencies there—than all their trade was disturbed by the removal of the staple in 1326 altogether from the continent to certain places in England, the names of which have not been preserved. In 1334 these places were all altered. In 1341 the staple was again transferred beyond sea to Bruges, in Flanders. In 1348 it was taken to Calais, then just captured by the English. In 1353 the staple was ordered to be held *for ever* at the following places, which we may thence conclude were the chief commercial towns of the kingdom:—Newcastle, York, Lincoln, Norwich, Westminster, Canterbury, Chichester, Exeter, and Bristol; Carmarthen, for Wales; Dublin, Waterford, Cork, and Drogheda, for Ireland. This eternal act was repealed ten years afterwards, and the staple removed in 1363 to Calais; thence in 1369 to places in England; and back again in 1376 to Calais. We need not pursue further the detail of these changes; enough has been said to demonstrate their mischievous effects upon the national industry. A grazier residing on the East coast, directly opposite the coast of Flanders, is not to export his wool directly to the seat of manufacture, by means of neighbouring ports, Hull, Lynn, or Yarmouth, but is obliged to send it far south to Calais, there to be measured, assessed to duty, and sent back again. It needs no deep knowledge of political economy to see that the price of the cloth, to the ultimate purchaser, will be increased not only by the duty, but by the cost of this extra carriage.

We have already stated that most of the fine cloth worn in England was manufactured in Flanders; the trade between the neighbouring countries was thus of the simplest and most profitable nature. One supplied the raw material, the other the manufacturing skill. Yet the attempt was more than once made to destroy this natural balance. The barons, who had usurped under Henry III. the chief power of the kingdom, in order to annoy the king, who greatly favoured his wife's foreign connexions, prohibited all exportation of wool, and all importation of cloth. In 1271 the same prohibition was renewed, yet in both countries the inconvenience was so severely felt, the manufacturers of England being far too young to live under such rough nursing, that the prohibitions were never practically enforced for more than a few months.

Another device for shackling internal commerce was suggested by royal selfishness. In 1245, Henry III. held a fair at Westminster for fifteen days, ordering all the merchants of London to close their warehouses and bring their goods thither, and suspending for the same period all other fairs throughout the kingdom. In 1249, the same arbitrary injunction was repeated. The king's object in both cases was to make money by the tolls he charged for the ground on which the temporary shops were erected. The traders present complained bitterly of the restriction, for on both occasions the weather was deplorably bad, and their personal discomfort great; but the royal end was answered, and that was enough.

This effort of kingly caprice may be regarded as an episode in the steady legislative interference with the foreign trade of the country. This was, for the most part, carried on by foreigners, who were either permanently settled in London, or visited that city periodically. These men were generally citizens of the great Flemish or Lombard commercial communities which play so important a part in the early history of modern Europe. The English people and legislature were absurdly jealous of their superior success in trade; and, forgetting the rare products of distant countries which they left behind, ignorantly imagined that the wealth, acquired by this commerce, was a robbery of themselves. These feelings were amplified in act. Edward I., in 1275, commanded that all foreigners should sell their wares within forty days of their arrival in England. The exaction of larger profits must have been the natural and inevitable result of such restrictive enactments—as they imposed increased risks of trade. No foreign merchant was allowed to trade at all, without a special royal licence, till, in 1303, Edward I. issued a general charter of toleration. Even then, all goods, save spices and mercery, were to be sold wholesale; no wine was to be exported; and every merchant was to be made liable for the debts and crimes of every other.

This fundamental relief was followed by fresh and grievous restrictions in 1307. In that year an ordinance was published, prohibiting the export, on any pretence whatever, of coined money or bullion. Could this ordinance have been practically enforced, its effect would have been to reduce the foreign commerce of our country to the level of that barter, by which the savage of the South Sea, exchanges his yams, for axes and nails. And again the price of every commodity would be raised, by the increased trouble and risk imposed upon its sale. In 1308—the very next year—the merchants of France, were relieved from this oppressive enactment; and afterwards, those of other countries. Yet the law remained upon the statute-book; and many an effort was made to ensure its enforcement. Searchers were appointed at the ports—and rewarded by a fourth part of the confiscated property. Edward III., in 1343, raised the reward to one-third—for which we may conclude that smuggling prevailed very extensively. At last the legislature gave way. Richard II., in 1390, and Henry IV., in 1400, issued permission to foreign merchants to carry away half the price of their goods in money; compelling them, however, to

give sureties to the custom-house, on entering the kingdom, that they would expend the other half in the purchase of British productions for exportation. It is curious enough to remark, as showing the prevailing ignorance on commercial matters, that during the whole period in which the exportation of money was forbidden, that of bills of exchange was expressly permitted.

Another regulation, which it is difficult to trace to any worthier motive than caprice, enacted that all foreign cloth brought to England for sale should be in pieces of a prescribed length. By an act passed in the reign of Edward III., 1328, it was ordered that all pieces of coloured cloth, not exactly 26 yards long, and 6½ quarters broad, should, after measurement by royal officers, called *aulnagers*, be forfeit to the king. In 1353, however, the force of circumstances had so far conquered the whim of Parliament, that it was ordered that all cloth deficient in length or breadth, should thereafter, not be forfeited, but only marked by the king's aulnagers, that the buyer be not deceived.

Before leaving the subject of the foreign trade of England in the thirteenth and fourteenth centuries, we may remark that the earliest commercial statistics in our progression, are contained in an Exchequer account of the exports and imports, on which duty was paid in the year 1354. The total value of the exports for that year was £212,338 5s.: the duty paid on them being £781,846 12s. 2d. Thirteen-fourteenths of the whole exports consisted of wool, the duty on which averaged about forty per cent. The total value of the imports for the same year was £38,383 16s. 10d. At the same time it must be remembered that those accounts refer only to articles upon which duties were chargeable, and that there were no doubt many other species of merchandise constantly circulating to and from the continent.

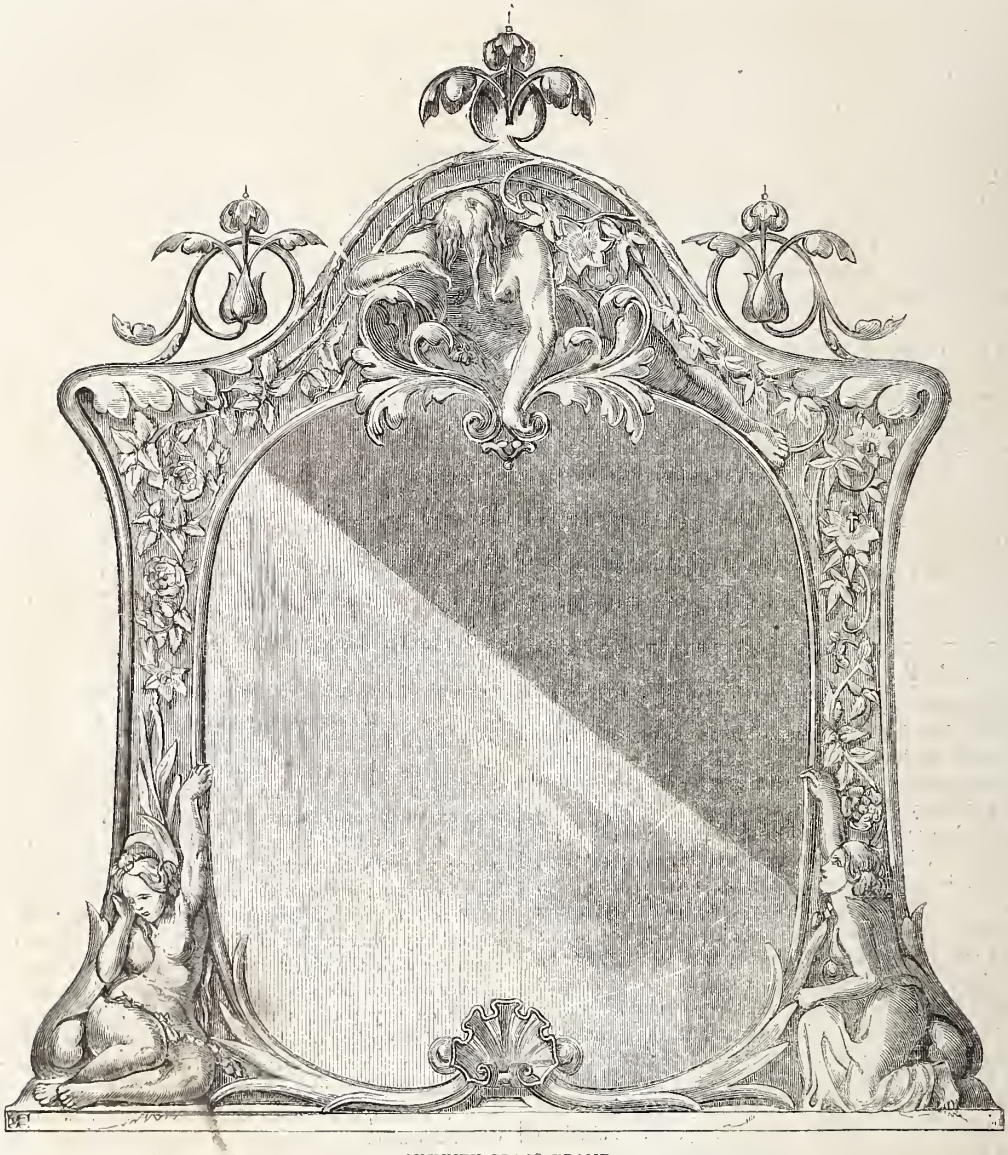
ART INDUSTRY.

In all former stages of civilisation, whether of our own or that of foreign countries, there has ever prevailed some particular style or taste analogous to the handwriting of an individual, by which at the present time the merest tyro in art may with certainty assign the period at which any object, whatever be its branch of production, was executed, or under what climate it may have been produced. Such is not, however, the case with the present age, which evidently, in art as in other things, is one of transition. We make and execute designs in every conceivable style, and there is no taste extant—be it ever so puerile—which has not its votaries. The art of the nineteenth century will certainly not be its own historian; for amidst all this chaos the most decided feature is skilful reproduction from the classic period downwards. Perhaps we are as yet only struggling in search of the great principles that may be the guide of future generations; or probably the time may have gone by for the development of any individual or national style; but certain it is that at a particular stage of progress, decoration becomes not a mere luxury, but an absolute necessity; and just as there are laws which govern all our other efforts, so must there be axioms of art which cannot be violated with impunity any more than the laws of mechanics. Of late the naturalist school, as it is termed, has made great progress, and, indeed, seems to be the only style, or rather manner, likely to become the characteristic of the present age. The principal fault committed by the adherents to this style, is the too common substitution of what should be the decoration for the thing itself which it ought to have decorated, as in the appropriation of flowers and other natural objects, in total defiance of their relative proportions, for fruit dishes and other purposes which they are unfitted by nature to perform. Natural ornament is no doubt very beautiful, but it is monotonous unless aided by conventional treatment; that is to say, unless its lines and development are arranged according to conventional rules, which are alike for all styles, the differences observable in the various tastes being only differences of materials; and it must be obvious that the motive of decoration cannot be merely to present to the mind natural objects, but to so dispose and treat them that they may be in harmony with the general form of the objects decorated, and in no case should they be independent of the general effect.

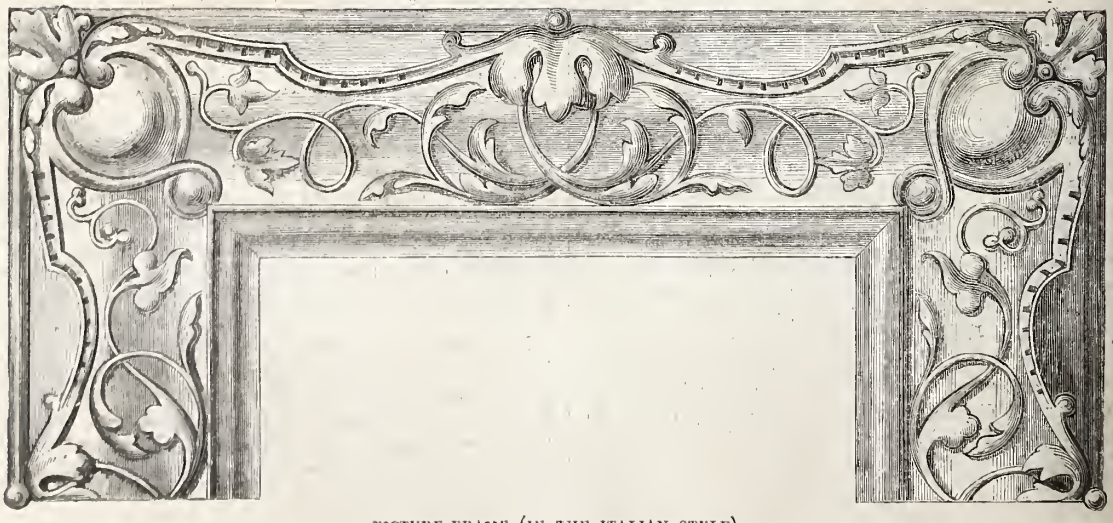
Having premised thus much, we will now come to the subjects, the engravings of which will be found in the next page. The first is a design for a chimney-glass frame, in which the story of Narcissus becoming enamoured of his own image is happily conveyed, and the ornament is partially composed of flowers emblematic of his passion and its object. It is supported on either side by two nymphs of the fountain. The other engraving represents half of a design for a picture frame in the Italian style, and pre-eminently suited for carving, which is abundantly testified by many gorgeous interiors of the seventeenth century still existing amongst the palaces of Italy, and in some few instances in this country; indeed, it was in the first half of the sixteenth century that this style attained its utmost development, when the carver was associated with the architect in interior decorations, and when the genius of Raffaelle did not disdain to employ his pencil in the creation of a new style—"the arabesque"—which was eagerly caught up and extended by his pupils, Giovanni da Udine (who was the principal assistant of his master in the production of the arabesques in the Vatican), Giulio Romano, Primaticcio, Giulio Clovio, and others. After a lapse of about fifty years, the style became corrupted, and in the course of a century had merged in another; after which period the art of carving continued to decline, until at length a period of profound repose, during which scarcely anything was attempted to call in requisition the abilities of the artist, was succeeded once more by the association of the architect with the wood-carver, in the persons of Wren and Grinling Gibbons. Gibbons, with the hand of a master, pressed into his service materials which his predecessors would not have dared to venture upon,—such as lace, net, weeds, ferns, flowers, &c.—materials requiring no slight knowledge or power to produce an effect. Thus he became the founder of a new school; and though he worked from nature, and used but a limited variety of flowers, these are of a character to be boldly and effectively worked. The principal remains of his carving in London are those at St. Paul's, where the flower-work of the choir, screen, organ, and the principal portion of the stone ornament, both within and without, are his production, and may be easily recognised from those portions executed by the Flemish carvers employed on the work, by their style being more various in their materials, but having been executed for a nearer point of sight. The general effect of the latter is that of a confused heavy mass at the required distance; whilst with that of Gibbons the general relief has never been forgotten; and not the least point of merit in his productions is the exquisite consistency they possess, to an extent far beyond any other master of the art. His ornaments were all in character with the object he was called on to decorate; nor did he ever overload his compositions with ornament, or throw away labour on any portions not destined to court attraction. The more delicate points of his work were always so managed as to be out of the reach of accident, and were thus made secure; a fact to which the wood-carvers of the present day would do well to turn their attention, it being no uncommon thing now to find articles with such an excess of decoration, both as to character and dimensions, as not only to run great risk of being injured itself, but as to be a positive inconvenience to its use. We would here also point to another very common fault,—namely, the inequality of execution of different parts of the same work,—one part entirely destroying the effect of the other, as in cases where figures, &c., are mixed with conventional ornament, the latter will often be found perfectly well understood and executed, whilst the former betrays the most barbarous want of knowledge both of principles and practice. Between Gibbons and the present time there have been scarcely any names worthy of note in the history of the art; for Chippendale, who lived in the time of George I., is but an illustration of how far it had declined towards the middle of the eighteenth century; and the productions of Demontrouil, who was at this time enriching the collections of our Gallic neighbours, are but the trifles, exquisite though they be, of the art.

Now, however, that much of the work, such as cornices, mouldings, and other works in low relief, which were formerly done by hand, are cut by machinery, it becomes more and more necessary that those who aspire to be called carvers should cultivate a knowledge of such artistic principles as will raise them beyond the level of mere mechanics; and it is in the hope that such a change is indeed already taking place, that we have lately perceived with much pleasure an effort to effect the introduction of the method of

"pointing" used by sculptors for the attainment of greater accuracy in copying the plaster model than is possible by the means hitherto in use. Of course, in important subjects, where models are made, every means which will facilitate their being truthfully copied must be hailed as a boon. Indeed it is only a wonder that a process found so practically necessary in sculpture should never before have been employed in the labours of an art so nearly allied to it.



CHIMNEY-GLASS FRAME.



PICTURE-FRAME (IN THE ITALIAN STYLE).

THE FOUR AGES; FROM DESIGNS BY T. JOHANNOT.



IV.—OLD AGE.

It has been wisely ordained that every period of life should have its peculiar pleasures and pains. In youth we are continually looking forward into the future—the dim, uncertain, but glorious future; in manhood, amidst the noble strife of the world, we are no less eager to seize the present. For old age is reserved the past. Youth has its hopes, manhood its enjoyments, old age its memories. Unto how many different objects has the life of man been likened,—to a river which, bursting impetuously from its mountain bed, seeks the plain in haste, and tumbles headlong in its course, over rocks and trees, till, having attained the quiet valley, it brawls contentedly away and loses itself at last in the great eternity of ocean; to a summer's day, which rises fair and clear, and bright with many colours, and sets at even in a dull gray sky; to a battle-field, in which many are assembled and from which few return. And to each period of our life has been assigned its separate duties and its peculiar feelings—to youth, obedience and love—to manhood, impulsive action, and resolute inflexibility of purpose—to old age, experience. We have all of

us an affection for the aged, especially when they are allied to us by ties of friendship or family; and it is affecting to witness the patriarch of a house surrounded by the children of another generation. That venerable old man with whitened beard and shaking hand was once as young and bold as he on whose arm he leans; and that old woman's withered face was once as fair and ruddy, and her eyes as bright and sparkling, and her scant elf-locks as rich and flowing, and her figure as full of grace and beauty, and abounding love, as that of the sweet granddaughter who tends her now. The artist has drawn a picture full of incident,—a painted story, in which each may read as he may, of love, and tenderness, and duty, and grateful recognition; prattling childhood, hopeful youth, thoughtful maternity, and serene old age;—ay, and gossipping, scandal-loving, card-playing, palsied, withered, dishonourable old age as well. Every picture has its dark features as well as its bright forelights, or it would not be true to nature.

For that old man exists the past. It is his life. With him, the toils of the world are over—

"Banner and flag are furled,
Glory and valour waned"—

and the dim eye turns lovingly to the prospect of a long, long rest from labour. The busy finger is no longer pliant as of old, the arm no longer strong to wield the axe or cleave the yielding waters; the sounds of the strife without no longer thrill through his heart like the voice of a trumpet; the march of the time is unheeded altogether, and the great heart, which was wont to almost burst its prison doors of old, lies now a cold and pulseless thing, within his bosom. The conflicts of the world are passed, with him, for ever; one other struggle, and then the story of his life is told.

And into that old man's memory how many incidents may be crowding now! The events of the present are lost and buried in the past. He is a child at school, that graybeard, once again. He goes down the old lane, oh how well remembered! and gathers flowers from off the old green banks and hedges, or stands upon the sea-shore looking for the pink and yellow shells, even as he used to do seventy years ago. He whoops and calls upon the village green, but no young voices echo back his own; he stands again beneath the old elm-tree, and watches, in his fancy, how swift the schoolboys run, and with what sturdy arms they swing the bat; he visits every spot familiar to his boyhood, and tracks the steps of a little child that once was lost in the depths of the brown wood, and feels such pity for it as none else can, for the little thoughtless child is now an old man; he looks back through all the changing years of a long life, and thinking of these things, says gently, as he wanders feebly through the room or walks for a little in the garden leaning on his grandson's arm,—"Fifty years ago—fifty years ago!"

And then when the end is nearing—when the hum and bustle of the world is becoming more faint and distant—when the things of yesterday are all forgotten, and the memory is busy with the events which happened half a century ago—when the wealth and the work of the day are left for others to take heed of—when the step becomes slow and uncertain, and the voice dwindles down to a "piping treble," and the

"Last scene of all
Which ends this strange eventful history"

is soon to take place—oh, then, what a happiness for the good man to look back upon a well-spent life. He was young as you, and now is old; he stood forward—it may be as you stand now—amid the bravest and the boldest of his time; he wrung from the hard hand of fortune the heritage of name and fame; he fought in the bloodless field of politics that his children and his children's children might have room enough for their great energies; and he rested not till he had secured for them a freedom which their fathers knew not; he believed that in this world none are so weak or insignificant but that the weakest hand and the feeblest voice may be raised in the van of human freedom; and now that he has come to lay down the charge he has held so worthily, he places his hand upon your heads and blesses you, oh, children of a later civilisation, and calling upon God to forward the good work of progression in the world, resigns his life in the belief that

"It hath conquer'd the might of time and space
And broken the bars of clime and race."

Old age, no less than youth and manhood, has yet its task to perform—and that task is the teaching and admonition of youth. Society is composed of many separate elements,—wealth and poverty, the extremes of character and the extremes of age, meet together in one city, and sometimes even in one house. A child is born into the world. It is nothing extraordinary, the same thing is taking place every minute; the child grows up to be a man, and feels himself alone. Love is natural to man, and so he loves and marries, and has children of his own, and grows old; and the wife of his bosom, the mother of his children, grows old and grey likewise; the children grow up too, and take their separate ways—the boys seek their fortunes, and the girls get married and have little ones of their own; and the old pair are left alone as they were when they were first married. Happy for them if they have so passed the years of their lives as to command each other's esteem; happy for them if they have brought up their children in the strait and narrow path; and happy for the children if they listened to the voice of wisdom, as spoken by that aged pair, and wandered not away from it. A family like this is a picture pleasing to contemplate; it is a source from which love, and faith, and sweet associations, are ever springing. A bond of union is among them which unites one generation to another; and from the bosom of such a family—as from the depths of a well-governed and happy nation—springs every social, and private, and public virtue; transfer the members of that family to the uttermost ends of the earth, and they will carry with them the good seeds sown in that quiet and well-ordered home. And so, at last, shall the good father be known in the good son throughout all generations; and as many as come from that house shall be blessed.

IMPOSSIBILITIES.

The history of civilisation is little else than a series of struggles against "impossibilities." The lives of great men are but a series of efforts to throw discredit upon the word and make men doubt its value. Ever since the world began the enemies of reform have intrenched themselves behind barricades built up with impossibilities, and hurled defiance in the teeth of advancing ages. Stone by stone these defences have been pulled down, but nothing disheartened they have retreated still farther, and shout out their old war cries, more faintly, perhaps, but no less doggedly and courageously than ever. How many pages would it take to recount the impossibilities that have been made possible by the courageous perseverance of a small minority of mankind from the time when Socrates preached his anticipated Christianity, down to the building of the Crystal Palace! What a strange history would that of *vanquished impossibilities* be; how full of blood and tears, of unrequited labour, of deferred hope, of disappointed ambition, of unsuccessful effort, of persecution, trouble and vexation; how many brave hearts have been crushed and broken by the heap of impossibilities flung upon them by the incredulous world! There never yet was an abuse or absurdity which was not defended by the single word *impossible;* and yet strange to say, there is not a word in our language whose meaning is less clearly definable. Men seem always to have looked upon the phrase as absolute—as marking out a line beyond which human strength and human knowledge were alike powerless, and have guarded it with as much jealousy as if it were a poor man's landmark. But in reality it has had an entirely different worth and aspect in each age of the world, and in all likelihood to each man who lived in it. What is impossible for people in one stage of cultivation is comparatively an easy matter to those in another. The savage who steals along the coasts of his native island in a frail canoe, deems it impossible to brave the rage of the stormy ocean far from the land, and beyond reach of assistance; and the sailors who had twice sailed round the world, braved the icebergs of the Arctic seas, and the sweeping monsoons of the southern ocean, thought it impossible to bid the winds defiance, and arrive on a given day in ports at either side of the Atlantic. These two facts illustrate well the conservative tendencies of the human mind, when but partially controlled by reason and education. All men are rank tories by nature. Experience and the influence of circumstances may modify their creed; but they still, as a general rule, have a hankering after

old ways, and a truly patriarchal love for impossibilities. They ect and foster them, and endeavour to palm them off upon the ext genoration as invincibles whom it is dangerous to approach. This infirmity has been handed down like a great heirloom from father to son, and its growth has been encouraged by erroneous religious notions. For many centuries in the world's history men were unable to draw an exact line between humiliation of the creature, and insult to the Creator. Forgetting how much of the divinity lives within us, they laboured studiously to degrade the human intellect, and ascribe its noblest efforts to the machinations of the devil, and have looked upon the efforts of the mind to free itself from the burden of prejudice and superstition as the certured workings of an unclean spirit. Happily for our race, God in his own wise purposes ever left amongst us a few men of strong faith and earnest purpose who did not see as others saw, nor heed "the voice of ages." Strong in their own belief, when grave heads cried "Impossible!" they answered, "It can be done," and later generations taking up the cry, faintly sung through the mists of futurity, "And it shall."

It is impossible. Was ever common phrase so dangerous to use, so entirely dependent for its value upon the amount of knowledge that he who utters it can bring to support it! Men assert things to be impossible because they are contrary to the laws of nature. These laws of nature, so often spoken of but so little understood, are far from being immutable canons laid down from all eternity for the government of the world. They are in reality, as we speak of them, merely a digest of the results of our own observation; and just in proportion as our observation has been confined, our experience limited, our power of collation and arrangement defective, in the same proportion is the probability that our conclusions are faulty, and *our* laws of nature are founded upon false data. A curious instance of this is furnished in an anecdote related by Locke of a certain king of Siam, who, when told by some Dutch merchants that in their country water became so hard in winter that men and horses and carts could traverse it, laughed them to scorn, and drove them from his presence as impostors. Nothing of the kind had ever occurred within the range of his experience, nor had he ever heard of such a phenomenon from any of those with whom he was in the habit of associating; in fact, so contrary was it to all his notions of the probable, that he held it to be a fixed law of nature that water must always remain fluid. And had science been then in a sufficiently advanced state to allow of his informants freezing it before his eyes, he would doubtless have ascribed it to magic, and still refuse to believe that such an operation was ever performed by nature on a large scale.

A handful of nitre thrown into boiling water would have at once produced the substance which in northern climes places bridges over rivers so strong that his largest elephants could have traversed with safety, and floating mountains which threaten the navigators with destruction. And had Lucian the laughing, witty sceptic, who dealt such damaging blows to the heathen divinities, been told that his fable of Æsculapius ascending to the heavens, accompanied by a dog and a snake, could now be realised in the person of hundreds of the god's disciples, and that balloons that enabled men to pierce the clouds were now familiar to every one, he would doubtless refuse to believe that they were aught else than the production of sorcery or witchcraft. But were his attention called to what takes place when a hurricane tears up pines from Mount Ida, and hurls them into boisterous waves below, he would doubtless, learned and discriminating as he was, confess that his notions of impossibility were rendered crude and incorrect from the deficiency of his knowledge. He would see that the confined air in the pieces of the wood brought the trunk floating to the surface, and would admit as an analogical conclusion that a lighter body than the atmosphere would, in the same manner, if enclosed in an envelope, rise through the clouds.

Impossibility, too, is a phrase of widely different import in different neighbourhoods of the same country, or even of the same city. Stories that would be received with implicit faith in Belgrave-square, would be rejected with scorn in Whitechapel, and *vice versâ*. And not only is impossibility thus relative to the state of our knowledge, cultivation and civilisation, but there are no exceptions to the rule that impossibility cannot be defined. Some that appear so, are not so in reality. If a man says two and two do not make four, we cannot say that this is impossible, for he does not assert a fact, but an opinion, necessarily a contradictory one, and its absurdity is due to the distortion of ideas in his own mind. His assertion is not a *wrong* fact, but no fact at all. And if a witness in a court of justice asserted that a man committed a murder in a certain place, and another proved that in half an hour after he was in another place two hundred miles away, the judge even in such a case as this could not say that what was stated was impossible; he could only refuse to believe it on the ground that so contrary was it to all his previous experience of speed in travelling, that the evidence of the one witness was not sufficient to weigh down the opposing scales. Instances like this might of course be enumerated *ad infinitum*.

We have adduced enough to elucidate our meaning.

We cannot do more than glance at a thousand other things, discoveries in science, reforms in law, improvements in education, and every other branch of the social and political machine, which thousands of voices pronounced impossible. We shall probably review them in greater detail at some future period.

THE MAHOGANY TREE.

The Mahogany Tree (*Swietenia mahogani*) is one of the most elegant, if not the largest, of the country in which it is found, and frequently grows in the crevices of rocks, and other places of the same description. The appearance of so large a vegetable production in such a situation is extremely curious and picturesque, and is to be accounted for from the construction of the seed, which is like that of the thistle, *winged*, or capable of being borne along by the action of the air, and in that manner deposited in holes and fissures in the rocks, where it speedily vegetates and springs up. As long as the plant remains young, the place in which it is found is sufficiently large for its growth, but as it increases in size, the roots gradually but irresistibly force asunder the walls of their rocky prisons, and throw off large portions of stone, thus by degrees penetrating into the very heart of the rock. It is not always, however, found in these situations, the largest timber being produced in some of the flat and marshy spots on the coasts of America; of this description is that known by the name of *Honduras Mahogany*, which is much looser in texture and of less value than that from the mountainous districts of Cuba and Hayti. This last kind is known in commerce as *Spanish Mahogany*, and is chiefly purchased for the purpose of being cut into veneers. The introduction of this wood into England took place about the end of the seventeenth century, in the following manner:

A London physician of the name of Gibbon, had a brother the captain of a West India ship. On his return to England, he had several logs of mahogany on board his vessel for the purpose of ballast, and as his brother was at the time employed in a building project, he made him a present of the wood, supposing it might be useful; his carpenter, however, cast it on one side, observing that it was of too hard a nature to be worked. Some time after, Mrs. Gibbons being in want of a box to hold candles, the cabinet-maker was directed to make it of this same wood; he, in his turn, made the same objection as the carpenter, and declared that it spoilt his tools. Being urged, however, to make another trial, he at length succeeded; and, when the box was polished, the beautiful colour of its grain was so apparent and novel, that it became an object of great curiosity, and attracted the notice, among others, of the Duchess of Buckingham, for whom a bureau was made of the same material.

Before this time it had been used partially in the West Indies for ship-building, but this new discovery of its beauty soon brought it into general use in the making of furniture. The chief supply, at the time we are speaking of, came from the Island of Jamaica, and the wood it exported was of the finest description; but since then, the constant demand has nearly exhausted the island, and it is now, as we have already said, chiefly brought from the Spanish Main and several of the larger West India Islands. There is a species of Mahogany which grows in the East Indies, the *Swietenia febrifuga*, which grows to a much larger size than the American tree, it is also much heavier, but the colour of the wood is of a dirty dark red.

CHARLES ANTOINE COYPEL.

The family of the Coypels is, perhaps, the most distinguished in the history of French art; not so much, however, on account of the great eminence of any one of its members, as for the degree of considerable excellence to which so many of them attained. It gave to France four painters, who, though differing widely in style and merit, left rich contributions to the galleries of their country's art. Noel Coypel, the first of the family who attained any reputation, was born in 1628, and died in 1707, having reached the distinguished rank of Director of the French Academy, and leaving behind him two sons, Antoine and Noel-



DRAWN BY BOCOURT.

Nicholas, who amply sustained their paternal reputation. Antoine, his father's pupil, was born in 1661, and accompanied his father to Rome, where he studied the works of the old masters. He afterwards travelled for improvement in Lombardy, and, on his return to France, had made such progress in his profession, that at the age of twenty he was elected a member of the Academy. His subsequent career as a painter abundantly realised the hopes which this early distinction implied. In 1714 he attained the highest rank in the Academy, and in the following year was appointed first painter to the King, and ennobled on account of his merit. In 1719 the Duke of Orleans, who became regent after the death of Louis XIV., employed him to paint the gallery of the Palais Royal, and conferred upon him a pension of fifteen hundred francs. The most distinguished of his works, which are nearly all in Paris, are his "Four subjects from the Æneid," in the gallery of the palace; "The Assumption," and "Christ disputing with the Doctors," in the church of Notre Dame; "The Judgment of Solomon," and "Athaliah," which are in the collection at Versailles. Besides these productions of his pencil he published two works on his art, entitled, "A Letter on Painting from a Father to his Son," and "Twenty Discourses on Painting," the latter of which appeared in 1721, and was dedicated to his patron the Regent. He died in the following year, leaving behind him the son whose name stands at the head of this paper. Noel Nicholas, less distinguished than his brother was, nevertheless, skilful and spirited in design, and a lively though somewhat affected colourist. His works, of which the subjects were chiefly pastoral, display much of the mannered and artificial style of the French school, and did not attract much attention during his brother's lifetime, but he afterwards rose in reputation till the time of his death in 1734.

Charles Antoine Coypel, whose portrait we have engraved

was the last of this family of painters. He was born in Paris, in 1694, and, though he early displayed a taste and aptitude for art, owed, it must be confessed, the distinguished position which he attained, more to favour than to the greatness of his intrinsic merit as a painter. He profited well by the example and instruction of his father, but nature had endowed him with a different order of genius. His talents were more versatile, and, consequently, less fitted to win for him, by themselves, an elevated rank in the higher departments of art. In this respect, he can hardly be said to have realised the high expectations so sanguinely expressed by his father in the epistle to which reference has been made. Several of his pictures, however, afford sufficient evidence of ability to prove that it was rather a want of perseverance in cultivating the higher elements of art, than a deficiency of talent, which prevented his attaining a rank second to very few of his country's painters. In boldness of design and delicacy of colouring he had but few superiors.



DON QUIXOTE ATTACKING THE MARIONETTES. FROM A PAINTING BY COYPEL.

At the early age of twenty-one, his proficiency, aided by his father's reputation and influence, was sufficient to secure his election to a membership of the academy, of which, five years later, he was appointed an assistant professor. Shortly after this period, he began the work which has mainly won for him his reputation as an artist. It consisted of a series of illustrations of the adventures of Don Quixote, one of which we have engraved. The colouring of these pictures shows how closely their author had studied the works of Rubens, during his stay in Florence, and subsequently at the palace of the Luxembourg at home. Indeed, in these best of his paintings Coypel's main defect, want of a peculiar style, is strikingly prominent; his conception was good, though not grand, but his execution showed him to be even more than an admirer of the great Flemish master. They were produced, however, at a period when France had but little to boast of in art, and though inferior, perhaps to the works of his father, they deservedly gained for him a high reputation at the time. With the source from whence the artist drew his inspiration, no one can be unfamiliar. Every one is acquainted with the knight of La Mancha, who, losing his reason over his books of chivalry, imagines that he lives in the times of paladins and enchanters; who, resolved to imitate Amadis and Orlando, whose histories he has read with such delight, mounts his lean and ancient steed, braces on his rusty armour, and traverses woods and fields in search of adventures. Every common object is transformed by his poetical imagination. Giants, paladins, and enchanters, meet him at every step, and all his misfortunes are not sufficient to undeceive him. With this splendid satire we are all familiar. Robinson Crusoe is not more intimately bound up in the memories of our youth, than is this inimitable creation of Cervantes. It has earned a literary immortality for its author, and made his name a household word all over Europe.

Paintings which at all faithfully illustrated the wit and humour of such an original, could not fail to gain wide and lasting popularity for their author. Everybody's imagination was already prepared to appreciate works embodying such inimitable characteristics. How far Coypel has succeeded in doing so in the picture of which our engraving is a copy, the reader must judge for himself. The scene which he illustrates is certainly one of not the least amusing in Don Quixote. Building upon the reader's recollection of it, we need merely give a brief outline of the immediate antecedents. Don Quixote and Sancho Panza have put up for the night at an inn, where a strolling puppet-showman arrives with his *marionettes*. "Master Peter," as his name is, proposes a performance, for the amusement of his fellow lodgers, and the benefit of his own exchequer. His play, to quote the boy who interprets the dumb show, "treats how Don Gaïferos freed his wife Melisandra, who was a prisoner in the hands of the Moors, in the city of Sansuena, now called Saragossa," in Spain. The fair captive is declared to be the daughter of no less a

personage than Charlemagne, who comes forward on the stage and upbraids his lukewarm son-in-law for not attempting the rescue of his spouse. Inspired with sudden courage by these imperial reproaches, Don Gaïferos buckles on his armour and gallops off for Spain. On reaching the tower where pines the fair Melisandra, he at once discovers himself, and, with a speed more practicable in theatricals than in real life, places her behind him, and turns his unwearied steed towards France. The escape, however, is perceived, and a large and brilliant body of Moorish cavalry sallies forth from the city in pursuit, with trumpets and kettle-drums in full play. What follows must be given in the words of the book:—"When Don Quixote saw this numerous cohort of Moors, and heard the martial din of the military instruments, he thought it would be advisable for him to succour those who fled. Accordingly he rose from his seat, and cried in a voice of thunder, 'I will never consent, while I live, that in my presence such an outrage as this be offered to so famous a knight and so daring a lover as Don Gaïferos! Hold, base-born rabble, follow not nor pursue after him; if you do, prepare for instant battle!' As he spoke he unsheathed his sword, planted himself close to the show, and, with violent and unheard-of fury, began to rain hacks and slashes upon the Moorish puppets, overthrowing some and beheading others, aming this and demolishing that. Among a great many of the strokes he fetched one with such force, that if Master Peter had not ducked and squatted down, he had chopped off his head with as much ease as if he had been made of sugar-paste. Master Peter cried out, 'Hold, Signor Don Quixote, hold, and consider that these figures you throw down, maim, and destroy, are not real Moors, but only puppets made of pasteboard; consider, sinner that I am! that you are undoing me, and destroying my whole livelihood.' For all that, Don Quixote still laid about him, showering down, doubling and redoubling, forestrokes and backstrokes like hail. In short, in less than two *credos* he demolished the whole machine, hacking to pieces all the tackling and figures, King Marsilio being sorely wounded, and the head and crown of the Emperor Charlemagne cloven in two. The whole audience was in consternation, the ape flew to the top of the house, the cousin was frightened, the page daunted, and even Sancho himself trembled mightily: for, as he swore after the storm was over, he had never seen his master in so outrageous a passion."

This translation, though it correctly enough conveys an idea of the adventure, but very distantly approaches the inimitable beauty of the original, which exhibits the nobleness, the candour, and the simplicity of the ancient romances of chivalry, together with a liveliness of colouring, a precision of expression, and a harmony in its periods, which have never been equalled by any other Spanish writer.

Coypel's series of illustrations extended to twenty-five, which were engraved by Surugere, Ravenet, Lépicié, and the other principal engravers of the day. He subsequently added another painting to the series, but it was not engraved. Two editions of the twenty-five were published, different in size and price, and the publicity thus given to them added greatly to the artist's reputation. The estimation in which they were held may be inferred from the language of the preface to the smaller edition, written by Pierre de Hondt: "The collection of the principal adventures of Don Quixote de la Mancha, which the celebrated Charles Coypel has given us, about the time of the majority of Louis XV., is, without question, the best and most valuable of the many collections of that description; inasmuch as he neglected nothing, especially with reference to the manners customs, dress, and other usages of Spain, from whence he had been so particular as to have drawings sent him, taken on the spot, and executed so faithfully, that even in the opinion of the Spaniards themselves, they were perfect representations of the original objects. The engravings of these pictures, which were published at the time, were so well received, so generally sought after, and so promptly purchased, that they soon became scarce, and consequently, of an excessive price."

After having discharged the duties of professor and assistant-rector, Coypel was unanimously raised to the highest dignity in the academy, that of director, in 1747, having in the previous year been appointed first painter to the king. From this period, however, his duties at court and at the academy, the part which he took in advancing the French school of painting at Rome, the efforts which he made with M. de Caylus to publish etchings of the most beautiful of the drawings intrusted to his care, as director of the royal cabinet of drawings, all these occupations left him but little time for painting. Nevertheless, endowed with a mind so active and versatile, he still found leisure to execute several large pictures for the churches of Paris, to deliver lectures at the academy on the theory of art, and to compose several comedies in verse, which gained for his name a place in the Parnassus of Titon du Tillet. Referring to these last-mentioned works, one of his biographers describes him sufficiently in a sentence:—"C'était un peintre bel esprit, qui donnait à l'étude du théâtre le temps qu'il dérobait à son art." After enjoying for five years the high dignities to which he had risen, Coypel died, at the age of fifty-eight, "regretted by artists and the republic of letters," says Papillon de la Ferté, "as much for his talents as for his personal qualities."

PEAT AND ITS PRODUCTS.

Amongst the many remedies propounded for the relief of our Irish brethren, few seem to promise more successful results than the manufacture of its bog-earth; for from it may be obtained a great variety of useful substances—tallow, charcoal, sulphate of ammonia, naphtha, oils, &c. &c. In a lecture delivered by Professor Brande, at the Royal Institution, the nature and products of peat were explained, and the uses to which such products might be applied familiarly illustrated. The professor described a peat bog as a superficial stratum of vegetable matter, which at different depths had undergone, or is still undergoing, various stages of changes and decomposition. The superficial appearance of a peat-bog is that of a mass of half-decayed heath, mosses rushes, and grasses, the roots of which have successively died away, though the plants still continue to vegetate. The mass is liqueous, and imbued, among other products of slow decay, with humic (from *humus*, the ground), or humus acid: and the abundance of moisture pervading the bog at once affects the character of the peat and the surrounding district.

The upper layers of the bog are usually of a loose fibrous texture, and of a pale-brown colour; but beneath the surface the density of the mass is found to increase considerably; till at last the distinct character of the vegetable ceases to be discernible, and the bog appears almost homogeneous, and of a dark-brown or blackish colour. In the midst of this mass are occasionally found the trunks of trees and some curious geological phenomena, laying in various positions and at different depths. A peat-bog—and, indeed, the entire district—may, therefore, be regarded as the consolidated produce of enormous primeval forests and fields of vegetation, covering in the aggregate millions of acres. It is a fact, no less curious than remarkable, that one-tenth of the whole surface of Ireland is covered with peat-bog which is not only valuable in itself, but which, if removed, would exhibit a soil beneath eminently fitted for the operations of the agriculturist.

In the lecture alluded to Professor Brande exhibited various samples of peat, taken from the upper, lower, and middle portions of the bog. He particularly noticed the tallow peat of the bank of Lough Neagh, which, from the brilliant flame attending its combustion, is sometimes rendered available as a source of light as well as heat,—for it must be understood, that, until lately, bog-peat was used simply as fuel in the houses of the poor.

Peat may be rendered highly useful for a great variety of purposes; which, however, for the present may be resolved into two,—charcoal, and the various productions derivable from what is called its destructive distillation. When peat is to be converted into charcoal, the plan adopted by the Irish Amelioration Society is to carbonise blocks of bog-earth, partially dried on trays of wickerwork, in moveable pyramidal furnaces—in much the same way, indeed, as ordinary charcoal is produced from the branches of trees. The charcoal thus produced varies considerably in character from the peat from which it had its origin, as well as in the density of some specimens compared with that of

others. In stove drying, dense peat loses about one-third, and the light and porous kind as much as one-half its weight; four tons of dried peat not producing much more than one ton of charcoal. When the peat, however, is properly compressed previous to its carbonisation—which a recently-invented machine enables the manufacturer to readily do—the charcoal resulting from the process exceeds in density that made from wood; and for the purposes of iron smelting it is said to be admirably adapted, owing to its great freedom from sulphur. As a purifying and deodorising agent the charcoal of peat is said to be eminently fitted.

The products of the destructive distillation of peat are as various as they are valuable. The elements of peat are precisely those of wood and coal—nitrogen, hydrogen, oxygen, and carbon. If, therefore, we distil peal in close vessels, the products obtained are precisely similar to those which are obtainable from wood and coal under like circumstances. Till lately, the expense attending the distillation of peat has prevented its general adoption. The employment, however, of a recently-invented blast furnace, which differs in principle from that in which iron is melted, by having an arrangement for collecting the products of combustion, has enabled the experimentaliser to obtain ammonia, acetic acid, pyroxylic spirit, tar, naphtha, oils, and paraffine, together with large quantities of inflammable gases from the peat.

These various products are, as is well known, of great use in the arts. Sulphate of ammonia is employed in the preparation of carbonate and muriate of ammonia, in caustic ammonia, and in the manufacture of various manures and fertilising composts; acetate of lime is in constant demand as a source of acetic acid, and of various acetates largely consumed by calico printers; pyroxylic spirit (or wood alcohol), is used in vapour lamps, and in the preparation of several kinds of varnish; naphtha is used extensively for dissolving caoutchouc, for making varnishes, and also for burning in lamps; the heavy and fixed oils mentioned are very useful in lubricating machinery, especially when intimately mixed with other oils, or it may be used as a cheap lamp oil for the production of lampblack; and, lastly, the paraffine, when mixed with fatty matter such as sperm and stearine, forms excellent candles.

Here, then, are no fewer than seven different substances producible from the hitherto neglected and dangerous peat-bogs of Ireland, and which only require the exercise of skill and patience, joined with the careful employment of capital, to render them available for all the purposes indicated.

ROMAN RUINS.

Towards the close of the latter century the classic ruins were the theme of the poets, just as now they dilate upon old abbeys and Gothic arches of the middle ages. There is scarce one didactic poem of that period which has not similes or episodes drawn from the architectural remains of Greece or Rome; nor a garden which was not ornamented with broken columns, giant trees, and mutilated statues overgrown by the surrounding grass. Byron, amongst modern poets, has revelled in these Greek and Roman relics, as Scott has in the Gothic; and Chateaubrand, in his *Génie du Christianisme*, has made the former a complete poem, looking at them both from a picturesque and sentimental point of view. "These ruins," says he, "considered in relation to their artistic effect, have a greater charm than if the buildings were entire. In those temples on which time has wrought no change, the walls conceal a part of the landscape, and prevent us from distinguishing the colonnades and arches of the edifice; but when they begin to moulder and decay, they are reduced to isolated masses, between which the eye rests both above and away in the distance, upon the stars, the clouds, the forests, rivers, and mountains. The ruins then seem to harmonise with the scenes around, and this in every case seems to modify and adapt itself to differences of clime and time, and association, whatever be the differences of architecture.

He who wanders amidst ruins that he may give way to reverie, sees little in them but a melancholy contrast. Most people have read Volney's reflections amidst the ruins of Palmyra. "The solitude of death has succeeded to the surging crowds that once thronged these porticoes. The silence of the tomb now prevails where the hum of busy commerce once was heard. The gorgeous opulence of a city of trade is changed to hideous poverty. The palaces of kings are now the lairs of wild beasts. Flocks graze upon the threshold of temples, and filthy reptiles dwell in the holy places of the gods."

It is thus that poets and philosophers, in the majority of instances, express themselves when standing amidst the *debris* of ruined cities. They do not seek to awaken the tender emotions to which Goldsmith gives vent in weeping over the "deserted village." They try rather to draw from a comparison of the present with the past momentous lessons upon the vanity and nothingness of everything human, mourning over the downfall of so many colossal works. *Sic transit gloria mundi* is the burden of all their reflections.

Hubert Robert, the artist whose painting we reproduce, loved Italy above all things, and passed a great part of his roving life, wandering through the catacombs, and the magnificent remains of Roman greatness. Even if he had not belonged to the age in which he lived, and had not partaken of the poetic opinions of the period, this prolonged sojourn amongst the finest relics of antiquity would doubtless have awakened in him the religious and philosophic sentiments which they inspired in others. His paintings seem an exact translation of the works of Volney, Delille, and Chateaubriand. Under an immense triumphal arch appears the statue of Marcus Aurelius; in the background a great temple, and in the foreground broken capitals, and fragments of columns and statues. An old woman has fastened a line for drying her clothes to the neck of the great emperor's horse, and a workman saws a stone in front of a sort of bas-relief, representing a proud Cæsar riding in his triumphal chariot. The intention of the contrast is here so evident,—so little is left to the spectator's imagination that we may doubt whether the general effect is not rather injured than otherwise.

Huhert Robert is an artist, of whom we now seldom hear anything. He was born in 1733, and was elected a member of the French Academy in 1767. Amongst the most remarkable of his paintings are "Cæsar embracing Pompey's Remains," "Ovid," "Arria and Paetus," and "Cicero." He was particularly fond of painting ruins and solitudes. His private collection at Auteuil, in the house in which Boileau at one time lived, contained a great number of works of this sort, which are now scattered all over Europe.

Robert, though remarkable as a painter, was rendered still more so hy the singularity of his life, and the strange adventures through which he passed. Italy was for a long time the place uppermost in his mind. To visit Rome, Naples, Sorrento, Capræa, Vesuvius, and see the places rendered illustrious by Dante, Michael Angelo, Tasso, and so many other great men, was the great idea of his life. Filled with romantic dreams he set out on his travels, and on his way was surprised by a tempest not far from the Great Chartreuse, and his horse being frightened by the lightning, threw him violently. He lay senseless until found by some monks passing by, who took him to their convent, and with difficulty restored him to consciousness. Some time afterwards, while rambling in a forest, delighted hy the beauties of the scenery, he lost his way, and remained for three days without any food but berries, and in hourly danger of being devoured by the wolves.

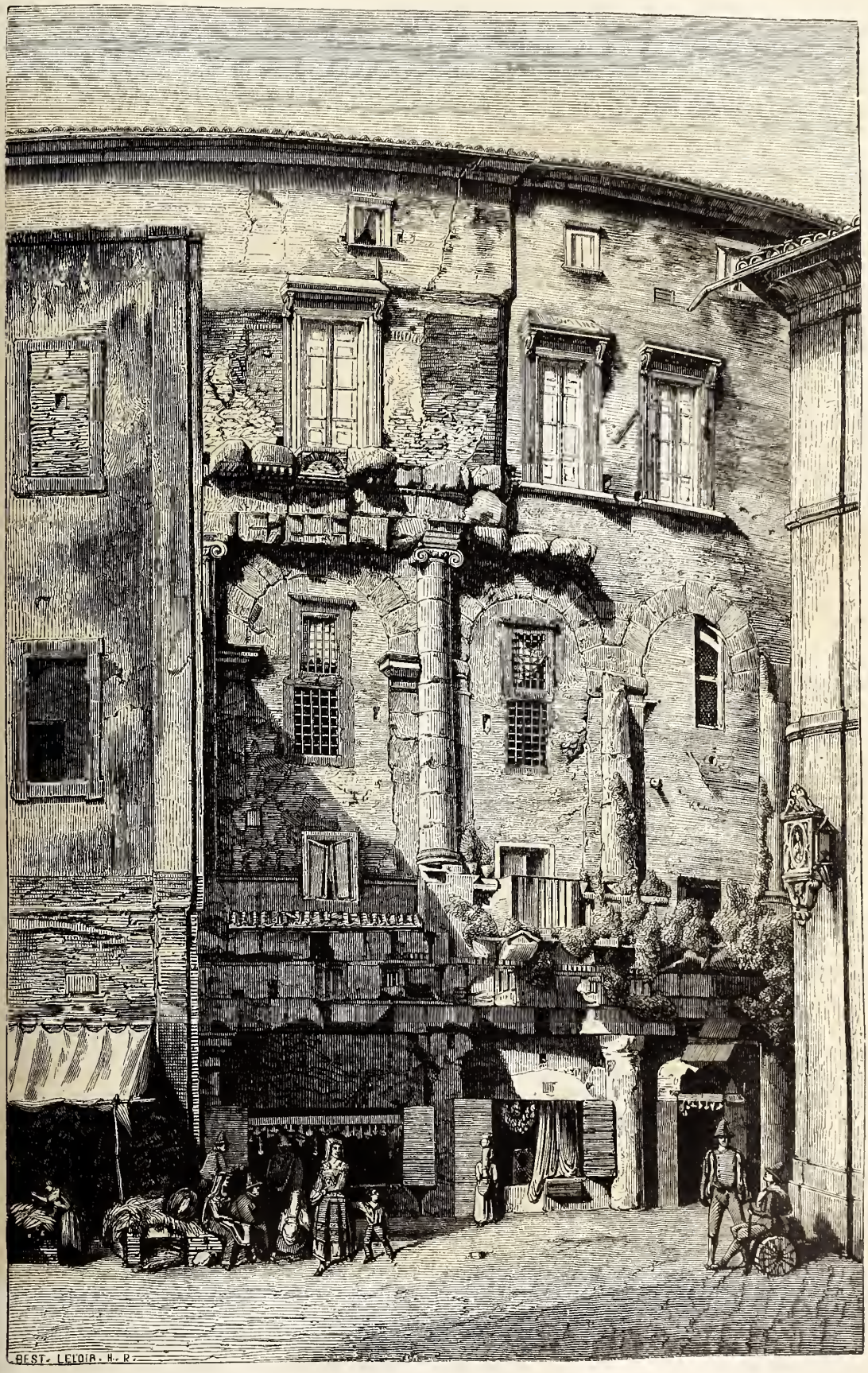
At length he reached Rome, and gave himself up heart and soul to the study of his art. It was here that the adventure befel him which has been celebrated hy Delille in his poem, *Imagination*. He went to visit the immense catacombs which extend under the city. He was alone, and had no other guide than a piece of thread or string which was fastened at the entrance, and which he held in his hand. He had not wandered very far, when he lost

his hold, and his torch going out at the same moment, he was left buried in profound darkness, in the midst of a labyrinth of passages. He wandered for hours, a prey to the most dreadful anxiety, and at last began to despair, and was about to lie down and resign himself to a lingering death, when he was tripped up by some object on the ground, and fell headlong. To his great joy he found that the missing thread was the cause of his downfall; and, starting up, soon reached the entrance once more.

On another occasion he sallied out in the night, and climbed to the top of the Coliseum, where he planted a cross, which was for a long time known as "Robert's Cross." He performed this adventurous feat in the midst of thickest darkness, although it was attended with danger and difficulty which few other men would have cared to face in broad daylight. In the morning the astonishment of the people was great, on perceiving a cross newly erected at such an immense height. A crowd



ROMAN RUINS. FROM A PAINTING BY HUBERT ROBERT.



THEATRE OF MARCELLUS.

assembled; many cried, "A miracle!" while Robert stood amongst them laughing heartily at their credulity. At last, having ventured to assert loudly that the occurrence was by no means wonderful, and that he could plant the cross there himself, the mob set upon him with fury, and it was with great difficulty that he escaped with his life. The Pope having heard of the affair, sent for him, and made him large presents. From that time Robert was known in Italy as "Roberto il Diavolo," or Robert the Devil. He was in Paris during the reign of terror, and was, with many others, seized and imprisoned in St. Lazare. Amongst his companions in misfortune were Roucher, André Chenier the poet, and Lavoisier the celebrated chemist. In this dreadful situation his gaiety and *sangfroid* did not forsake him. He beguiled the tedious hours of captivity by painting landscapes and portraits of his friends upon the plates. One day, while playing tennis in the courtyard of the prison, he heard the voice of the gaoler calling over the names of the sixty victims who were on that day to be conducted to the guillotine. Amongst others, he heard that of *Robert*, and as he crouched in terror in the corridor, another unfortunate wretch answered to it, and mounted the cart, and none knew which of the two was meant.

If men are to be judged by the company they keep, posterity cannot but think favourably of Robert. Amongst the number of his friends were Buffon, Quirinus, Visconti, Vernet, Greuze, Gretry, Delille, Le Rain, Voltaire, &c. It was he who superintended the decorations for the play of *Irene*, on the memorable evening when the patriarch of philosophy saw his bust crowned with laurels; and it was he who received Voltaire's last words. "My friend," said he to Robert on his deathbed, "at what age did Titian die?" "Monsieur," replied Robert, "some say at one hundred; others, one hundred and ten." "Ah," said Voltaire, "he was a happy man; he received an instalment of his immortality while yet living." Robert diedsuddenly in his studio in 1808.

Our second engraving is not from a work of Robert, but well depicts the present state of one of the finest remains of ancient Rome. The theatre was raised by Augustus in honour of Marcellus his nephew (the son of his sister Octavia), a youth who promised well, and whose early death spread a gloom over the whole empire. Most of our readers may remember the tribute paid him by Virgil in the sixth book of the Æneid, where he describes Æneas as meeting him in Hades. When the poet was reading his work to Octavia, and came to the passage—

> "Heu miserande puer! si qua fata aspera rumpas,
> Tu Marcellus eris"—

she fainted away, and on her recovery lavishly rewarded him.

The theatre was 540 palmæ in diameter, and could contain thirty thousand spectators. The style of the building was so perfect that modern architects have taken it as a model, whether of the Doric or Ionic orders, or for both combined It is believed that in the exterior of the semicircular part, which is faced with immense blocks of travertine, and in which the porticoes were, the theatre was adorned with three orders of architecture, but there now remain only the *débris* of the two inferior ones. The broils of the middle ages did it irreparable damage. The families Pier Leoni and Sanelli turned it into a fortress. The Massimi family afterwards used it as a palace, after designs of Balthassar Peruzzi. In latter days it has become the inheritance of the Dukes of Gravina.

After building of the theatre, Augustus erected a superb portico, in which the people might take refuge during showers of rain. It had the form of a parallelogram, with a double row of columns, to the number of 270, and it was decorated with splendid pictures and statues. It was amongst the ruins of this that the far-famed *Venus di Medicis*, which now adorns the tribunal at Florence, was discovered. The emperors Septimus Severus, and Caracalla restored the portico, of which now nothing remains but a few broken columns and pilasters.

Many of the finest of Roman remains were seriously injured during the siege of the city by the French in 1848, and most of them are fast falling before the march of time. The papal government, whatever its faults, has never shown itself averse to the encouragement of art, but its attention has been for a long while too closely absorbed in the suppression of political disturbances to afford either time or opportunity for the preservation of the relics of imperial and republican Rome.

THE HISTORY OF LITERARY COMMERCE.

Nothing marks more strikingly the progress of the nation during the last two hundred years than the history of literary commerce; nor is there a surer guarantee of its continued advancement at an accelerated pace than the present vast expansion of the book trade, which is about to burst all its remaining shackles, and expatiate in the perfect freedom claimed as essential to the prosperity of all other branches. We find the true principles of political science confirmed by history; and as the argument from facts is the most conclusive to the human mind, the importance of shedding the light of the past upon the discussions of the present day, is evident, —for history is an accumulation of facts.

One of the first objects of the early printers was to supply the anxious demand of men of letters for copies of the ancient classics, which had been for so many centuries accessible only in costly manuscripts which could only be deciphered by great labour. These first appeared in expensive folios. But the Alduses, Stephenses, and Plantins produced them in neat octavoes and duodecimocs. Instantly the horizon of literature was expanded, light encroached on the realms of "chaos and old night," where ignorance had held its leaden sceptre, and superstition inthralled the immortal mind with its ghostly terrors. At first the market was overstocked, but a new demand was soon created, and the seed cast upon the waters was soon found producing an abundant harvest of readers.

The supply from the stores of the ancient classics was not checked by authority. It was different, however, with the English Bible. Its first translators and printers were persecuted from city to city, and from nation to nation. So great were their trials, so numerous their adventures, and so magnificent were their labours, that the "Annals of the English Bible," published by Pickering, fill two immense volumes. The persecutors spent large sums in buying up the first editions, in order to burn them in piles in the market-place. But this proceeding was almost as blind as the animosity of the Irish peasant who resolved to destroy a bank by burning its notes. By means of this fanaticism the first costly editions went off rapidly, and funds were obtained from the enemy to print fresh supplies, while the burnings seemed as the most effective advertisements, creating a demand that might not otherwise have existed to the same extent. In 1540 Grafton printed only 500 copies of his complete edition of the Scriptures; but the demand increased so rapidly that we have still extant no less than 326 editions of the Bible, or parts of the Bible, printed between 1526 and 1600.

A thirst for education soon resulted from the art of printing. Both in Protestant and Roman Catholic countries schools and universities were founded, for which books were largely demanded, and these, in their turn, produced ever-increasing circles of fresh readers. William Caxton, our first printer, produced 64 works from his press, and his assistant and friend, Wynkyn de Worde, published 408 books from 1493 to 1535. To another of his fellow-labourers, Richard Pynson, 212 are assigned during the same period. The "Typographical Antiquities" of Ames and Herbert records the names of 350 printers in England and Scotland, working between 1474 and 1600, during which time nearly 10,000 distinct works were printed, giving an average number of 75 each year. Compare this with the 2,700 books issued from the British press in 1851, exclusive of periodicals and newspapers!

Long after the introduction of printing books were very dear in England. In 1505, a "primer" and a "psalter" cost twenty-pence, then equal to six days' wages of a labouring man. In 1516, Fitzherbert's "Abridgement," a large folio law-book, the first published, was sold for 40s., the price at that time of three fat oxen. As publishers began to rely on a larger number of customers, books became cheaper. But during the reigns of the Tudors, printing was an exclusive privilege granted by the crown to certain individuals, which of course limited the trade while restricting the liberty of the subject. About two hundred copies of each work is supposed to be the average number printed during this period.

During the politico-religious contest under the Stuart dynasty the press was very active. Two thousand volumes of controversial tracts, issued between 1640 and 1660, are preserved in the British

Museum, and these volumes contain 30,000 separate publications, which indicates a prodigious activity of the national mind during these twenty years. The Restoration was accompanied by the prevalence of profligate literature; and in order to check the growth of anything more wholesome, an act of parliament ordained that only twenty printers should practise their art in the kingdom; and we find that in 1666 there were only one hundred and forty working-printers in London. How characteristic of the age was this act! Restraints upon the commerce of literature, thus carried out fully, strike us as monstrous. But is not this principle the same to whatever extent it may be carried out? And does not the great publisher, who says to the trade, I shall not allow you to sell this book under a certain price, act in his own sphere in the same spirit of monopoly and coercion as the Stuarts did in theirs?

The laws, however, which limited the number of printers soon fell into disuse. From the year 1666 to 1680, the average number of works issuing from the press yearly was 252, two-fifths of which were professional,—connected with law and education. But more than half of these publications were reprints, pamphlets, single sermons, and maps. At the close of the seventeenth century, the ordinary price of an octavo volume was five shillings.

The beginning of the eighteenth century was signalised by the rise of *periodical literature*, and of what we now technically call "the press." In the year 1709 London had one daily paper, fifteen three times a week, and one twice a week; and provincial newspapers were established in several places. In 1724 the stamp duty was imposed. In 1731 Cave produced the first magazine printed in England; so that our periodical literature is only about one hundred and twenty years old. The first magazine was called the "Gentleman's." The booksellers started the "London" in opposition. The "Monthly Review," the first of the critical class, was established in 1749. During the first half of the century, only 5280 new works appeared, giving an average yearly issue of 93. A quarto published during that period seems to have been sold for 10s. to 12s. a volume, and octavo from 5s. to 6s., and a duodecimo from 2s. 6d. to 3s. Before this, an excise duty had been laid upon paper, and the costs of authorship even for the humblest labours were raised, yet prices had not been raised. "We can only account for this," says Mr. Charles Knight, in his postscript to "Caxton," "upon the principle that the publishers of the first half of the eighteenth century knew their trade, and *printing larger numbers, adapted their prices to the extension of the market.* They also in many cases lessened their risk by publishing by subscription, a practice now almost gone out of use, but possessing great advantages for the production of costly works. This was in many respects the golden age for publishers, when large and certain fortunes were made. Perhaps much of this proceeded from the publisher's aiming less to produce novelty than excellence, selling *large impressions of few books*, and not distracting the public with their noisy competition in the manufacture of new wares to catch the passing fancy of the hour. Publishers thus grew into higher influence in society. They had long ceased to carry their books to Bristol or Stourbridge, or to hawk them about the country in auctions. The trade of books had gone into regular commercial channels."

During the latter half of the eighteenth century, literature became rapidly *popularised*. Periodicals spread on every side. Magazines, reviews, and newspapers were greatly multiplied—and the plan of publishing large works in numbers, to meet the wants of the many, was first adopted. Among the most successful of the "number books" was Smollet's "History of England," which realised a circulation of twenty thousand copies. The wider diffusion of periodical literature increased, instead of diminishing, the demand for new books. From 1792 to 1802, no less than 4096 new works were published, exclusive of reprints and pamphlets. The average yearly production was more than three times what it had been during the previous period—and this not by means of reduced prices, for the prices of books had risen from 50 to 100 per cent.

The early part of the eighteenth century witnessed an enormous expansion of the book-trade. During the first twenty-seven years, the new publications amounted to nearly twenty thousand. While the demand thus increased, the prices of books were rising. How are we to account for this? By the principle of *association*, which has achieved such wonders in our day, in all departments of trade and commerce. The desire for knowledge had led to the formation of *reading societies* and *circulating libraries*,—by which means many were enabled to read the principal new works at a small expense. These societies secured a market for a certain number of copies of each work,—and the publishers took advantage of this to raise the price—for which we shall blame them less when we consider that the economical arrangement of societies or companies seemed calculated to limit the number of purchasers. Indeed, it was predicted that they would destroy the trade of publishing. But ultimately, they created a much larger market, by extending the taste for reading. This taste gradually descended in the ranks of society; and produced a demand for books conveying solid information in a popular form, and published at a low price. To meet this novel demand, "*Constable's Miscellany*" was commenced in 1827. In the same year the *Society for the Diffusion of Useful Knowledge* commenced its publishing operations, and, several publishers of eminence soon turned their capital into the same broad channels. The works of standard writers were reproduced at moderate prices, and the thoughtful mechanic was enabled to read at his own fireside the masterpieces of the human mind, and to become a centre of elevating and civilising influence to the people around him. The "Penny Magazine," the "Penny Cyclopedia," and "Chambers's Journal," followed in the same direction. Of these, the most daring speculation was the Cyclopedia. Mr. Knight states, that the work returned about £150,000 to the commerce of literature, and that £40,000 was distributed among authors and artists engaged in its production, of which sum, more than three-fourths were laboriously earned by the diligence of the writers.

Cheap literature, so far from destroying the trade of publishing, as had been predicted, caused a very large increase in the annual issue of new books, so that the croakers from the old roosts of monopoly have been continually disappointed in their dismal prophecies. In the four years ending 1832, were published of new books, 6,149 volumes; in the four years ending 1842 were published 8,597 volumes. The average price per volume in the first period was 11s. 5d.; in the second period 8s. 9½d. This is the estimate of Mr. M'Culloch in his Commercial Dictionary. That gentleman says, that if these works were sold at the publication price, averaging from 8s. to 9s. a volume, the product would be, for new books, £708,498, and for new editions and reprints, £231,218. But he considers that the actual price did not exceed an average of 4s. a volume, which would yield £435,600 a year.

We find by counting the works on the list in the *Literary Almanack*, that the number of books published in 1851 was 2,700. At that rate, the number for the last four years would be 10,800, exceeding by 2,200 the issue for the same period ten years ago; and during the intervening period, be it recollected, the trade in periodical literature has been enormously expanded.

The number of *weekly periodical works* issued in London, on Saturday, May 4th, 1844 (not newspapers), was 60, with a weekly sale of 300,000 copies, read chiefly by the working classes. We believe the present number of such periodicals is not quite 60, but the number of copies issued must be much larger, while the *monthlies* are greatly increased. In May, 1844, 227 monthly, and 38 quarterly periodicals were sent from London to all parts of the United Kingdom. The number of copies sold on Magazine-day was estimated in that year at 500,000, for which cash to the amount of £25,000 was paid. The annual returns for periodical works were then estimated by Mr. M'Culloch at £264,000, others set it down at £300,000.

Last year (1851), were issued from London 327 monthly, and 46 quarterly publications, showing an increase in the former of 100, or nearly one-third, and in the latter of eight or one-fifth over the numbers in 1844. When we take into account 100 weekly papers published in London, each with a literary department, supplying to some extent the place of a Magazine, and supported chiefly by the industrial multitude, we must perceive what a vast revenue *they* contribute to the book-trade. Indeed, we see, throughout the whole history of that trade, that in proportion as it has relaxed its exclusiveness, and considered the many it has expanded and flourished.

THE LADIES' DEPARTMENT.

TABLE D'OYLEY, IN ANTIQUE POINT.

MATERIALS.—A d'oyley frame, and Meeklenburgh thread, Nos. 1, 7, 80, and 150.

The d'oyley frame used for making these d'oyleys, is something like that formerly in fashion for d'oyleys in soft cotton and wool. The pegs of this one, however, are of brass, and are forty in number; namely, ten on each side of the frame; and those at the corners are almost close together, sufficient space only being left to allow the thread to pass between them.

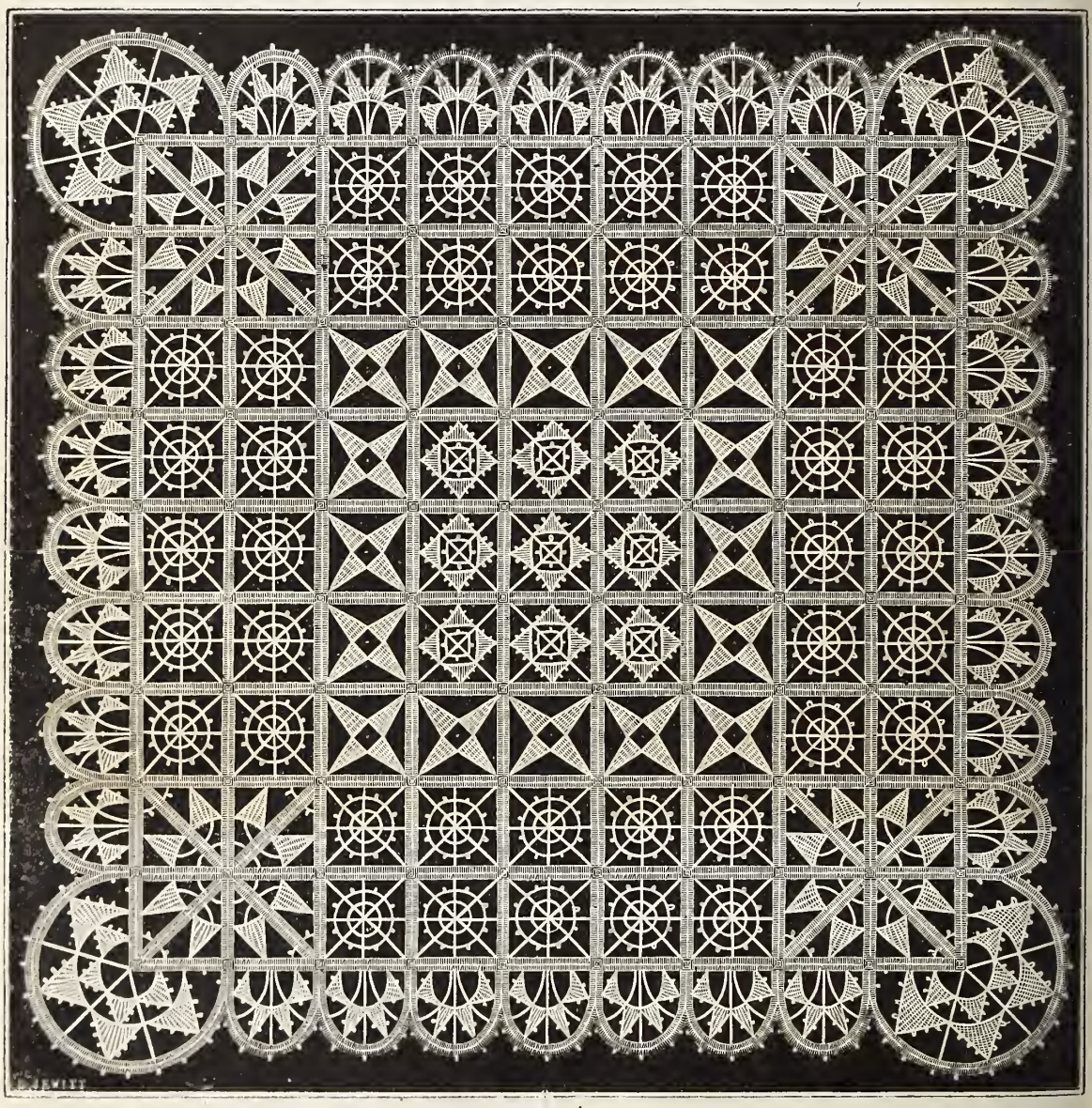
The reason Meeklenburgh thread is selected as the material for these d'oyleys, is that linen lasts so much longer than cotton; and they are of a kind that, if properly made, will serve for a century.

Begin to form the bars which divide the d'oyley into squares, by winding the thread No. 1 across the frame, first in one direction and then in the opposite. To make our description clearer, we will call the top of the frame A, the bottom B, the left side C, and the right D. Holding the side A at the top, we will reckon the pegs from the left to the right, Nos. 1 to 10, for A and B; and when we have to work in the opposite direction, we will make the side C the top, and reckon the pegs of C and D in the same manner. It would facilitate the working to put these figures on the wooden frame, as well as the letters, before beginning.

TO MAKE THE FOUNDATION OF THE PERPENDICULAR BARS.—Do not take the thread off the reel, but knot the end on peg 1 A. Pass the thread on the right side of this and of peg 1 B, then up the left side of these, again down the right and up the left, twice more, so that a bar of six threads crosses the frame parallel with side C. Pass on the thread, without breaking off, to pegs No. 2, and do the same; and so on with all to No. 10, when it will be necessary to fasten off by knotting the end securely on the peg.

These threads have now to be crossed by similar ones, from C to D. Take a needleful of thread, two yards long, and thread it on a coarse long needle. Fasten the end to peg 1 C, and in passing to the corresponding peg of D, slip the needle under th first three of every six threads; do the same in returning, whic will raise the other three. This is to be done three times; the fasten off, and take another needleful for peg 2. All the te from C to D are done separately, and in the same manner.

The twenty bars, each consisting of six threads, are then to b formed into braids, by darning them backwards and forward Use No. 7 Meeklenburgh, and a large needle; fasten on, an slip the needle alternately under each three, taking the stitche as closely together as possible. In working the perpendicula lines in this way, miss those parts where the others cross them and when you come to the crossings in doing the lines from C t



POINT LACE D'OYLEY.

D, do the same darning from the corners to the centre of the little square formed by the crossing of the threads.

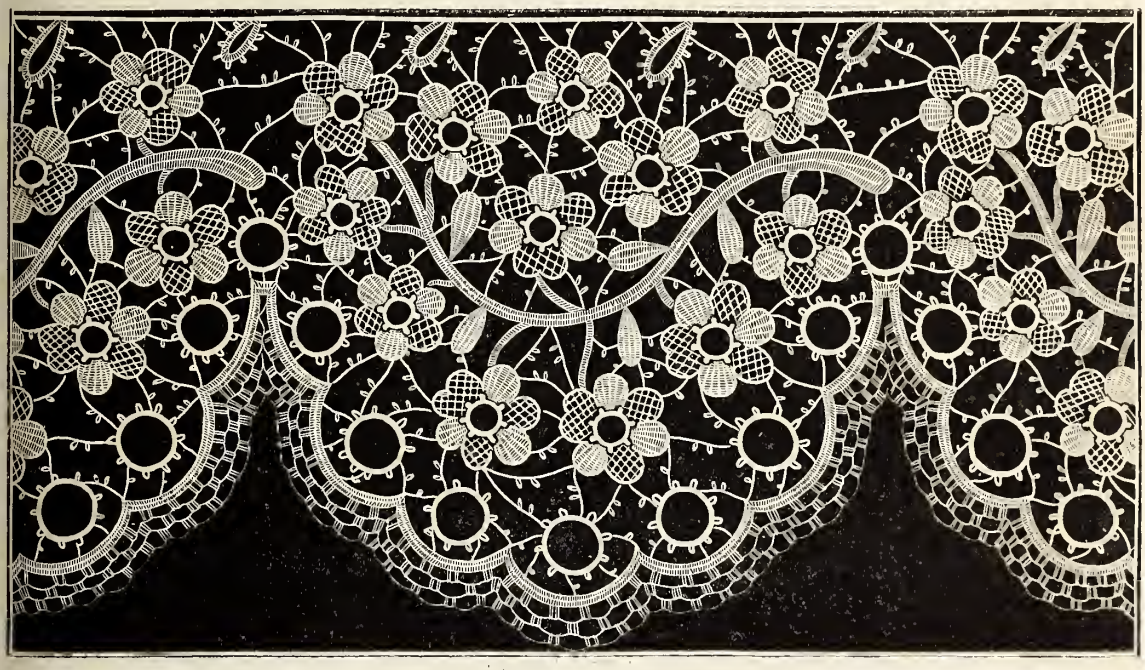
When all the bars are done, slip the d'oyley off the frame, and tack it firmly on a square of parchment, allowing a margin of two inches all round. The square spaces, of which there are nine each way, are then to be filled with point stitches, arranged to form certain patterns.

THE CORNERS.—These are all alike, and every one occupies four small squares. Begin by making diagonal bars (of *four* threads, instead of six), from peg 1 and peg 3 A, slipping the needle through the bar of peg 2, when passing it. The meeting of all these bars forms the centre of the wheel, and all the circles round it are to be done in Mecklenburgh, No. 7. Make one round, a quarter of an inch from the centre, passing the needle through the back of each bar as you come to it, and covering the circle with buttonhole-stitch. A second plain circle must be worked, rather more than a quarter of an inch beyond this one, and short bars, in pairs, connecting the two must be make as seen in the engraving. To make the points of the wheel, work backwards and forwards, in close buttonhole-stitch on each section, decreasing one stitch every row, until you work only one stitch on the point, and connect it with one of the main bars. In each corner of the square, a quarter of a wheel is worked, in a Raleigh bar.

As we have observed, four squares are occupied by each corner wheel,—the spaces between them, which are five squares long and two deep, are all worked in the same pattern,—each is divided by four bars, one perpendicular, and the horizontal one closing in the centre, and two diagonal from the corners. These are simple bars, consisting of a single thread, covered with buttonhole-stitch; they are done in 80 Mecklenburgh. Two wheels, a small one, of plain buttonhole-stitch, and a larger, with a Raleigh dot in each section, complete each square. The row of squares immediately within these,—namely, five each way, are filled with Swiss stitch. This being newly introduced, we must describe it. With No. 1 Mecklenburgh, carry a thread diagonally from one corner of a square to the opposite one, do not draw the thread tightly, and twist back on it to the corner where it began. Another twisted thread must be worked between the same two corners. Slip the needle along the braided bar to one of the vacant corners, and carry the thread *under* the twisted bars to the opposite. Twist back on the thread four times; pass *over* one twisted thread, twist three times, pass over the other twisted thread; twist four times more, and this brings the needle to the corner. A second bar must be made in the same way, parallel with this one. The small pointed spaces between each pair of threads is then closely filled with foundation-stitch, leaving a little diamond in the centre. The foundation-stitch must be done in Mecklenburgh No. 7; it is desirable, therefore, in order to use the needleful of No. 1, to make all the twisted threads before filling in any, as the needle can readily pass through the back of the bars, from one square to another. Sixteen squares are to be filled in this manner.

In the centre of the d'oyley are nine squares, all of which are filled in the same way. With No. 80 Mecklenburgh make two diagonal braided bars, crossing in the centre of the square. These are connected at a very small distance from the centre, by Raleigh bars, with a single dot on each. They are worked so as to surround the middle, but in a square, not a circular form. In each section another bar is worked, so as just to clear the point of the Raleigh spot, and this is worked gradually to a point, by leaving out a stitch at each end, every row; making a Raleigh spot, however, *at the end of every row*, and one at the point which is to be joined to one of the main bars.

THE BORDER.—The corner has a large scallop, and a small one is made on the edge of all the intermediate squares. The radiating bars are in the buttonhole-stitch, and the sections of circles have points worked in foundation-stitch, with a Raleigh dot at the end of every alternate row. The outer edge of every scallop is braid-stitch, worked on four threads and finished with Raleigh dots.



DEEP POINT LACE EDGING.

DEEP POINT-LACE EDGING.

MATERIALS.—Mecklenburgh threads, Nos. 1, 7, 100, and 120.

Draw the pattern from the engraving, a section of it being given the full size. The paper must then be lined with alpaca. Should a short piece only be required, the pattern should at once be made of the full length; if not several may be drawn. From the closeness of the work it is impossible to work twice over the same paper.

The border of each pattern is formed of seven small scallops. It is worked in braiding-stitch, that is, four threads are laid on, parallel with each other, and formed into a braid by darning them backwards and forwards, putting the needle always under two together. As it is not desirable to have any break in the outline, it will be advisable to take, for each of the four outline threads a needleful sufficiently long to answer for the whole piece of lace. When the whole length of the paper is done, the ends may be

twisted round a card, and wrapped in paper to keep them clean whilst that section of the work is in progress.

Each pattern contains one spray of flowers and small leaves, the stem of which is braided like the edge, only that it is generally wider at the end.

All the outlines are made in No. 1, and the braiding done in No. 7. The flowers consist of six petals, three of which are worked in foundation-stitch, that is, close buttonhole-stitch over a thread, and the others in spots formed by making two close buttonhole-stitches, and then allowing the space of two before working the next. In the succeeding row, the two close stitches come on the bar of thread formed between one spot and the next. The centre of the flower is an open circle, covered with close buttonhole-stitch, with Raleigh dots.

The leaves, which are very small, are entirely in foundation stitch. In each section of the large scallop is a wheel formed by working a circular Raleigh bar, on a foundation of three threads. The ground is in Raleigh bars worked very irregularly.

The straight edge of the lace is a line of buttonhole-stitch on two threads.

Three rows of Sorrento edge, worked one upon another, complete the lace. This edge and the flowers are done in Mecklenburgh 120. The remaining parts in No. 100.

DECEPTION AND CREDULITY IN WORKS OF ART.

"Deception," says Sir Joshua Reynolds, "which is so often recommended by writers on the theory of painting, instead of advancing the art, in reality carries it back to its infant state: the first essays in painting were certainly nothing more than mere imitations of individual objects, and when these amounted to deception, the artist had accomplished his purpose." In one view of art, however, the more perfect the imitative talent of the artist, the greater his excellence. Nature, after all, is the most perfect model; and the more minutely her features are caught up by the painter or sculptor, and represented in his work, the more completely does he realise the loftiest idea of art. We grant that the most perfect imitations of national objects may be utterly destitute of the *æsthetics* of art, the embodiment of which is by some considered the highest achievement of the artist; but then, this representation of the "beautiful" only indicates a deeper insight into nature on the part of him who makes it, and shows that he possesses in addition the power of exquisite execution. In bodying forth the highest phases of beauty, tenderness, sorrow, passion, or any of the other feelings of the mind, he is as much, only in a loftier sense, an imitator of nature as is the artist who copies a limb, a tree, or any other natural object. Not that we would be understood to confound, or put on a level, the widely different merits of two such artists; for *mere* imitation, in the ordinary sense, however perfect, is much inferior to the far higher artistic talent of invention. The one can lay claim to no higher rank than that of a skilful copyist, whilst the other rises infinitely above him, as the originator of ideas drawn from a vivid perception of the moral and physical beauties shadowed forth in nature. In manual execution the one may be perfect, but the other alone possesses the true inspiration of art.

The history of art furnishes us with very numerous anecdotes of the power of exquisite imitation, or deception, both in ancient and modern artists. Parrhasius and Zeuxis, two celebrated Grecian painters who flourished in the fourth century before Christ, disputed as to which of them was the best painter in their age; and to decide this point they agreed that each should produce a picture of which the world should judge. Accordingly Zeuxis painted some grapes, and Parrhasius a curtain. The two works were finished and produced. When that of Zeuxis was exposed to view, birds came and pecked at it: proud of this testimony to the excellence of his performance, he desired Parrhasius to remove the veil and show his picture; but finding himself outwitted, candidly confessed himself overcome. Zeuxis afterwards painted a boy carrying grapes; and seeing the birds come to it, he admitted that if the grapes were well done, the boy would in proportion be ill done, since the birds were not afraid of him.

Apelles, a still more celebrated Grecian painter than either of those just mentioned, and who enjoyed the patronage of Alexander the Great, wishing to make the acquaintance of Protogenes, an artist who lived in the island of Rhodes, went thither to see him. When he arrived at the painter's house, he found only an old woman, who asking the visitor his name, he answered that he would write it on the canvass; and taking his pencil, with some colour he designed something with great delicacy, and then retired. Protogenes coming home shortly after, was told of what had passed. The beauty of the outline at once convinced him that it was the work of Apelles, as he believed that no one else could equal it. Then, with another colour he drew on the first lines a second outline, more correct and delicate, and went out, bidding the old woman show *that* to the person if he returned. When Apelles called again he was astonished to see himself outdone; but with a third colour he finished the design with all the subtilty of his art. Protogenes returning, and seeing this last addition, gave up the dispute, and ran in haste to seek for Apelles. Pliny regarded the portrait of a horse, by this painter, so true that ether horses neighed and kicked at it, as an achievement of art as admirable as Venus Anadyomene, which Fuseli calls "the wonder of art, the despair of artists." Another anecdote of this prince of Grecian painters is on record. He was once wrecked on the coast of Alexandria, where he had formerly been well received, but the then reigning Ptolemy treated him with neglect. The courtiers, who owed the artist a spite, sent him a fictitious invitation to the royal table, by one of their attendants, which he gladly accepted. The king, offended at his presumption, asked him which of his court had invited him. The painter extricated himself like a man of wit; taking a piece of charcoal from a chafing-dish which stood by, with three or four strokes on the wall, he sketched the portrait of the person who had brought him the invitation, to the great astonishment of the king, who instantly recognised the face of the impostor. This adventure reconciled Ptolemy to the painter, who was afterwards loaded with honours. An extraordinary tribute to the graphic power of Apelles' pencil is contained in the fact related by Appian, that a certain physiognomist and fortune-teller, by looking on his portraits, foretold the very time of the death of their originals, or at what time their deaths had happened, if they were already dead. This, however, may be fairly labelled "doubtful."

In feats of imitative art modern painters have not been inferior to the ancients. Barnazano, an excellent painter of landscapes, painted a strawberry so exactly that peacocks snapped at it, supposing it to be natural. Hans Holbein, a distinguished German artist of the fifteenth century, when about to leave Basil for a time, to raise the value of his works, which were growing too numerous there, resolved to leave behind him a specimen of his artistic abilities. A portrait of one of his patrons was at his house; on the forehead he painted a fly, and sent the picture to its owner; the gentleman, struck with the beauty of the piece, went eagerly to brush off the fly, and then found the deceit. The story soon spread, and, as such trifling deceptions often do, made more noise in the artist's favour than greater excellencies. Orders were given to prevent the city being deprived of so great a painter, but in the mean time Holbein had privately taken his departure.

As it was not unusual for some of the older masters to repeat their best pieces, the existence of two or three of the same subject is no argument against their genuineness. The value of these masterpieces of art has, it need not be remarked, too often led to attempts at copying them, some of which have deceived the most skilful judges. The following is, perhaps, the best instance of the fidelity and masterly execution of a copy. Frederick II., Duke of Mantua, passing through Florence on his way to Rome, paid a visit to the Medici palace; over one of the doors he saw the portrait of Pope Leo X., between those of Cardinal de Medici and Cardinal de Rossi; the heads were by Raphael, and the drapery by Julio Romano, and altogether it was an admirable painting. The duke was so greatly taken with the picture that he earnestly begged it of Pope Clement VII. when he reached Rome. His holiness at once acceded to the request of the duke, and ordered his secretary, Octavian de Medicis, to put the picture in a case and send it to Mantua. The secretary, who was a lover

of painting, and loath to deprive Florence of such a treasure, deferred sending it, pretending that the frame was not rich enough, and that he would get another fitted up for it; this delay gave him time to have it copied by Andrea del Sarto, who imitated even the minutest effects which time and exposure had made on it. The copy was so perfect that Octavian could hardly distinguish it from the original; and, that he might not be deceived, he put a private mark on the back, and sent it to Mantua. The duke received it with great satisfaction, not doubting that it was the genuine work of Raphael and Julio Romano; the latter was then in the service of Frederick, and had no suspicion of its being a copy; but Vasari, who had seen it whilst painting, going to Mantua, disabused him. Having been shown all the duke's rarities by Romano, the latter said that the finest still remained to be seen, naming the painting by Raphael and himself. Vasari said it was very fine, but that it was not Raphael's. "Not Raphael's!" said the astonished artist, "do I not know my own work, do I not see the strokes of my pencil?" Vasari answered, "You do not observe it closely enough; I saw Andrea del Sarto draw that very picture, and you will see behind a mark, to distinguish it from the original." Finding this to be true, the deceived painter replied, "I value it as much as if it was Raphael's, and am even more pleased, for it is very surprising to see so excellent a master so well imitated."

Sebastian Ricci executed several very excellent imitations of Paul Veronese, many of which he sold for originals, and once deceived La Fosse. When the latter was convinced of the imposition, he advised Sebastian, "for the future to paint nothing but Paul Veroneses, and no more Riccis."

One other instance of deception will sufficiently illustrate how successfully it has been practised in works of art. There is a collection of engravings by Bernard Picart, an ingenious artist of the last century, which has been published under the title of *The Innocent Impostures*. Picart had been long vexed at the taste of the day, which made it fashionable to decry the works, and depreciate the talents, of the engravers at that time, in comparison with the earlier artists. To expose the absurdity of such an opinion, Picart chose some designs of the earlier painters, which had not been engraved, worked at them in secret, stamped some of them on old paper, and had them quietly circulated. In every case they were received by the *cognoscenti* as genuine works of the old engravers. Having had his joke, he exposed the trick, and published the collection under the title just mentioned.

The annals of art abound with almost equally numerous instances of popular credulity respecting individual pieces. An account of one of these will conclude this paper. In his Lives of the Spanish Painters, Mr. Cumberland mentions a singular instance of this in connexion with a picture of the Immaculate Conception, by Juanes, and which was in the late College of Jesuits in Valencia. This celebrated picture is the object of universal veneration amongst the faithful, and by the devout and credulous is considered almost equal to the Virgin herself; for tradition reports, that it was painted by order of Father Martin Alberto, to whom the Blessed Virgin condescended to appear on the eve of the Assumption, and required of the holy father to have her portrait taken in the dress she then wore. The honourable office of fulfilling the command was committed to Juanes. For a long time the artist failed in transferring the sacred features to the canvass, but at length succeeded; and by means of elaborate acts of penance and great contrition, the work was sanctified and the pencil never missed its stroke. The popular tradition goes on to say, that Juanes being one day seated on a scaffold, giving his finishing touches to the upper part of the picture, the woodwork gave way, and the painter being in the act of falling, the holy personage, whose portrait he had taken, stepped opportunely from the canvass, and, seizing his hand, saved him from the fall; this done, and Juanes safely landed on the floor, the gracious lady returned to her frame.

SARDIS.

History furnishes few more striking illustrations of the transience of man's most valuable possessions, and his greatest works, than Sardis. The vicissitudes which it has undergone, the remembrance of its ancient magnificence, the story of its decline, and the mournful prospect of its present desolation, form a sadly eloquent commentary upon the mutability of human affairs. When Dr. Chandler visited it in the latter part of the last century, the site of the once proud capital of Lydia, the Christian Sardis of the Apocalypse, was "green and flowery;" and the residence of a long line of wealthy and powerful monarchs was, as it is now, the habitation of oxen and buffaloes, with the exception of a few mud huts which sheltered Turkish herdsmen. "Identified with the names of Crœsus, and Cyrus, and Alexander," says a later traveller, "and covering the plain with her thousands of inhabitants, and tens of thousands of men of war; great even in the days of Augustus; ruined by earthquakes, and restored to its importance by the munificence of Tiberius; Christian Sardis offering her hymns of thanksgiving for deliverance from pagan persecution in the magnificent temples of the virgin and the apostles; Sardis again fallen under the yoke of a false religion, but still retaining her numerous population and powerful defence only five hundred years ago:—What is Sardis now?" Her greatness and her glory have passed away, and "like an unsubstantial pageant faded," realising the desolation expressed in the beautiful verses of the Persian poet:—

"The spider has wove his web in the imperial palace,
And the owl hath sung her watch-song on the towers of Afrasiab."

The ancient kingdom of Lydia, celebrated in history and poetry for its power and civilisation, and for the splendour of its capital, embraced, as most of our readers are aware, a small but delightful district at the back of the Ionic settlements, verging towards the interior of Asia Minor. At its most prosperous era, it extended from the river Halys on the east to the Ægean sea on the west, and from the northern shores of the blue Mediterranean to the southern coast of the Euxine. The wealth of its monarchs is alike the subject of history and song; and the site of their capital, even in its present state, has preserved traces of their enterprise and their splendour. Anacreon celebrates the "famed Gyges' treasures," which were afterwards surpassed by the riches of Crœsus. Herodotus describes the stupendous monument which this latter prince erected to the memory of his father, Alyattes, and which, after the lapse of twenty-four centuries, yet remains in sufficient entirety to justify the admiration he expresses. The history of this once powerful kingdom is marked by a succession of changes which has few, if any, parallels in the annals of any other nation. Conquered by Cyrus, Xerxes, and Alexander, submitting to Roman dominion, and now groaning under the grinding despotism of the Turks, a waste and almost depopulated province, the eye of the traveller beholds in the ruins which he everywhere meets with the saddening memorials of its many vicissitudes. Sardis was situated between the river Cayster to the south, and the Hermus to the north, on the banks of the Pactolus, at the foot of Mount Imolus. The date of its foundation cannot be fixed; Strabo represents it as very ancient, but "posterior to the siege of Troy" (1184 B.C.). After its capture by Cyrus, it retained its size and importance, and became the seat of the Persian satraps, as it had been of the Lydian kings. Nearly a century later it was taken by Alexander the Great, after whose death it became the residence of Achæus, the governor, under the Syrian kings, of the whole Asiatic peninsula. Subsequently it passed under the dominion of the all-conquering Romans, and sank into a place of inferior importance, its principal trade being transferred to Smyrna and Ephesus. In the reign of Tiberius, it, with eleven other of the principal cities of Lower Asia, was almost totally destroyed by an earthquake, but was restored by the munificence of the emperor; its inhabitants were exempted from all taxes for five years, and received a supply of 100,000 great sesterces. "The calamity," says Tacitus, in recording this event, "happened in the night, and was for that reason the more disastrous; no warning given, and, by conse-

quence, no time to escape. Hills are said to have sunk, and valleys rose to mountains. Quick flashes of lightning showed all the horrors of the scene."

At what period, or by whom, Christianity was introduced into Sardis is unknown. Some have said that the new faith was first preached there by the apostle John, whilst others ascribe this to Clement, a disciple of St. Paul. Of its Christian history during the three following centuries we know but little, beyond that during the second it was under the Government of Melito, a learned and eloquent bishop, who suffered greatly from the persecutions of Marcus, who, in the language of Gibbon, "despised the Christians as a philosopher, and punished them as a sovereign." During the reign of Julian the Apostate, in the fourth century, an attempt was made by the old idolatry to recover its former ascendancy in Sardis; and, to further this object, Chrysanthius, a native of the city, was appointed by the emperor governor of Lydia. The heathen worship was practically restored; the altars which had been destroyed were rebuilt; the temples were raised from their ruins, and the city of Crœsus once more resounded with the pagan hymns of Cybele and Apollo. These efforts, however, ended with the brief reign of their author; after his death the heathen priesthood was again suppressed, and the institutions of Christianity once more and permanently established. In the year 400 A.D., Sardis was taken by the Goths, under Tribigild and Caianas, who had revolted from the Emperor Arcadius; the city was plundered, and many of its inhabitants put to the sword. Of its history since then, little remains to be said: in the wars of the Greek emperors with the Paulicians, it suffered greatly, and the subsequent calamities of Asia fell heavily upon it, till it at length passed under the desolating yoke of the Turks in 1304. The final banishment of Christianity from it was effected about forty years ago by the tyranny of a Turkish chieftain, Kar'Osman Oglou, to whom Byron refers in his *Bride of Abydos*:—

"A nobler and a braver man
Was never seen in battle's van,
We Moslems reck not much of blood
But yet the line of Karasman
Unchanged, unchangeable hath stood
First of the bold Timariot bands
That won and well can keep their lands.
——— Enough that he who comes to woo
Is kinsman to the Bey Oglou!"

A few Christians, who resided in the place, wished to erect a church, to enable them to worship in a spot hallowed by the early triumphs of their faith, but the savage Bey refused the permission, and the persecuted few were obliged to forsake their ancient home, and retire beyond his jurisdiction.

Such is a brief outline of the history and the fate of Sardis. "How doth the city sit solitary that was full of people! Her foundations are fallen, her walls are thrown down. She sits silent in darkness, and is no longer called the lady of kingdoms." The miserable village of Sart furnishes the only traces of human habitation now near its site: the place of its once gorgeous palaces and majestic temples is marked only by scattered heaps of ruins. Our engraving, taken from the drawing of a traveller, shows all that remains of its former glory. The two lonely pillars which stand amid the scattered fragments in the foreground are supposed to be the remains of the temple of Cybele. In Dr. Chandler's time, there were five of these columns standing; but the Turks have since mutilated the ruin, in the expectation of finding concealed treasure. Behind runs the Pactolus, and beyond it, in the background, the Imolus rears its jagged and grotesque summits as in the days of Crœsus, Cyrus, and Alexander. The princes, warriors, temples, and churches of Sardis have now passed away, and the owl and jackal occupy the place; whilst the black tent of the Turcoman is pitched upon the plain through which Xerxes poured his armed millions to fall beneath the sword of the Greeks. Of the structures which once echoed with the pæans of heathenism and the hosannas of our own victorious faith, nothing now remains to meet the eye of the traveller, but a few broken and scattered fragments of marble: the only relics of the ancient days which have outlived the ravages of time and war, are the colossal monuments of death which cover the last resting-place of the Lydian kings.



RUINS OF SARDIS.

HASTINGS.

ASTINGS is one of the few places in England which combines esent attractions with richness in historical associations. There no spot in the kingdom which can boast connexion with an ent of such stupendous importance in the annals of the English tion, as the battle which was fought in the heights over the wn. To it we owe some of the most curious, and it may be the st useful, features in our laws and government. It wrought a

Most of our readers are doubtless already acquainted with the circumstances which led to it.

The name of the town is derived from that of Hastings, a Danish chieftain, who in the time of Alfred the Great ravaged the southern coasts of England. After various exploits in which he displayed great valour and ferocity, he was defeated by Alfred, and finally driven from the country. During his stay he had



VIEW OF HASTINGS.

reat change in the manners, tastes, and mode of thought of the hole people. From it we have derived our *hauts seigneurs*, our ouse of Lords, and the whole pile of feudalism which has for nturies weighed upon the energies of the nation. The principles hich brought Charles I. to the scaffold struck root in the battle-eld at Hastings, and monopoly, many abuses, and barbarism, hich still linger in our path, may have their origin traced rectly or indirectly to the same disastrous field.

thrown up intrenchments on the coast, from which circumstance the place took his name.

Harold, the son of Godwin, when a young prince, was ship-wrecked on the coast of Normandy, and conducted to the court of Duke William, by whom he was for a long time detained under pretence of entertaining him and showing him the country. During the heat and excitement of a banquet, a promise was extracted from him that on the death of Edward the Confessor, the reigning king of

England, he would assist William in gaining the throne, and renounce all his own rights in his favour. Shortly afterwards the duke "convoked a great council of the lords and barons of Normandy, in the town of Bayeux. The day before that fixed for the ceremony, he had caused to be brought from all the places round bones and relics of the saints, sufficient to fill a great chest or cask, which was placed in the hall of council, and covered with cloth of gold. When the duke had taken his seat in the chair of state, holding a drawn sword in his hand, crowned with a circlet of gems, and surrounded by the crowd of Norman chiefs, amongst whom was the Saxon Harold, two little caskets of relics were brought and laid upon the cask of relics. William then said, 'Harold, I require thee, before this noble assembly, to confirm the promise thou hast made me; namely, to assist me in obtaining the kingdom of England after King Edward's death, to marry my daughter Adela, and to send me thy sister, that I may give her to one of my followers.' The Englishman, once more taken by surprise (for he had previously been entrapped, as the only means of escaping a long and wearisome captivity, into making some vague promises of adhesion to William's cause), and not daring to deny his own words, approached the two reliquaries with a troubled air, laid his hand upon them, and swore to execute to the utmost of his power his agreement with the duke, if he lived and with God's help. The whole assembly repeated, 'May God be thy help.' William immediately made a sign, on which the cloth of gold was removed, and discovered the bones and skeletons which filled the cask to the brim, and upon which the son of Godwin had sworn without knowing it. The Norman historians say that he shuddered, and that his countenance turned pale at the sight of this enormous heap."* Harold soon after came to the throne of England himself, and immediately after his accession received the following message from William. "William, duke of the Normans, sends to remind thee of the oath which thou hast sworn to him with thy mouth, and with thy hand upon good and holy relics." "It is true," replied the king, "that I took the oath to William, but I took it under constraint. I promised what did not belong to me, a promise which I could not in any way perform. My royal authority is not my own; I could not lay it down against the will of the country, nor can I against the will of the country take a foreign wife. As for my sister, whom the duke claims that he may marry her to one of his chiefs, she has died within the year; would he have me send her corpse?"

In truth, he was placed in a puzzling dilemma. His own interests and those of his people were to be weighed against an oath taken with every circumstance of solemnity, which in that age could add weight to obligations. Either alternative was a deplorable one, and at this distance of time we must not judge him harshly. Had his crime been ten thousand times as great, his unshaken courage and heroic death would well have expiated it, and without laying claim to any skill in deciding cases of conscience, we dare affirm that the course he followed was the one best pleasing in the eyes of Him who judges men not by their words merely but by their motives.

William immediately made preparations for an invasion. From all parts of Normandy, the needy, the vicious, the outlawed, the indebted, the adventurous, all whom no ties of duty or religion could bind, who left nothing behind them but bad repute, and had nothing to lose by their lives, and hoped for rich plunder if successful, flocked to his standard. The expedition sailed from St. Valery, near Dieppe, on the morning of the 20th of December, 1066. William led the van in a vessel which had been presented to him by his wife Matilda, which was distinguished by its splendid decorations in the day, and in the darkness of the night by a brilliant light at its mast-head. Being of better construction, and less heavily laden than the others, it soon outstripped all the rest, and during the night got out of sight of them. Early in the morning a sailor was sent to the mast-head to look out for them, and saw nought but sky and water. On going up a second time, he saw four sails; and a little after, reported the sea to be covered with a forest of masts. They cast anchor a few hours afterwards on the Sussex coast, and landed between Pevensey and Hastings. Tradition still points out the precise spot. The knights and archers were the first to disembark, and then came the carpenters, armourers, masons, with their tools in their hands, planes, saws, axes, &c. Last of all came the duke, who stumbled and fell as he jumped on shore. Those around turned pale, looking upon it as a bad omen; but William jumped up quickly, with his hands full of sand, and dissipated their fears by exclaiming, "By the splendour of God" (his favourite oath), "I have seized England with my two hands, and that which I have grasped with your help I will maintain!" They dined on the beech, and then proceeded to the erection of a wooden fortress which they had brought from Normandy in disjointed pieces, but ready to be fitted together. In this they supped merrily that night. An English knight had from a neighbouring hill, beheld the landing of this mighty host, and forthwith rode, without tarrying by the way, to convey the news to Harold, who was in the north, near York, where he had just defeated a horde of Norwegians and slain their king. "The Normans have come," said he, rushing into his presence, "and have landed at Hastings, and built up a fort, which they have enclosed with a foss and palisades; and they will rend the land from thee and thine, unless thou defend it well." Harold forthwith set out upon his march southward, calling upon thanes and serfs and freemen, as he passed along, to join him in defending England from the scum of Normandy.

In the mean time William had moved on to Hastings, and encamped on the East Hill, where some remains of his intrenchments still exist. It is in allusion to this event that Campbell's beautiful lines were composed on the Camp Hill:—

"In the deep blue of eve,
Ere the twinkling of stars had begun,
Or the lark took his leave
Of the stars and the sweet setting sun,
I climb'd to yon heights,
Where the Norman encamp'd him of old,
With his bowmen and knights,
And his banner all burnish'd with gold.

At the Conqueror's side,
There his minstrelsy sat, harp in hand,
In pavilion wide,
And they chanted the deeds of Roland.
Still the ramparted ground
With a vision my fancy inspires;
And I hear the trump sound,
As it marshall'd our chivalry's sires.

On each side of that mead
Stood the captors of England's domains,
That ennobled her breed,
And high mettled the blood of her veins.
Over hauberk and helm,
As the sun's setting splendour was thrown,
Thence they look'd o'er a realm,
And to-morrow beheld it their own."

The next day the battle took place, and long and valiantly did the Saxons repulse with bill and bow the charges of the Norman chivalry, striking home for "Harold and Holy Crosse!" The King was at last struck down by a well-aimed arrow. His sons had already fallen fighting by his side, and the English, "few and faint but fearless still," were overwhelmed and routed. In the evening, to use the expressive phrase of the Saxon chronicler—"the high men of the land were Normans, and the low men were Saxons."

The Conqueror built an abbey on the field, and called it Battle Abbey, the ruins of which still remain.

Amongst the antiquities of Hastings, the ruins of the old Castle, of which we give an engraving, holds a prominent place. It crowns the West Hill, and is still a very striking and picturesque object. Little is known of its early origin. It is supposed, and not without foundation, that there was a fort of some sort here before the Norman conquest; as it is stated in an old chronicle, that Hastings, amongst other places, was fortified by a British chief, named Arviragus, when he threw off the Roman yoke. During the greater part of the last century, the area within the castle walls was used as a pasture for sheep, and nothing of the castle itself remained but a few misshapen ruins. In the year 1833, however, the Earl of Chichester caused excavations to be set on foot

* Thierry's "Norman Conquest."

he lower part of a large gate, supposed to have been the gate of
e keep, was soon discovered. The gateway was about eight or
ne feet wide, and nineteen feet deep. The groove for the port-
llis and the hinges were still remaining, and a piece of chain,
hich had doubtless been used in fastening it, was found near
e spot. The remains of the castle at present have the shape
a rounded triangle, with the base towards the south, on which
le there was never any necessity for outworks or other defences,
it stands on the summit of a craggy and precipitous rock, two
three hundred feet in height. On the eastern side is a wall
nked by towers, part of which is still standing, and on the
maining side a deep ditch separating the hill on which the
stle stands, from that which rises beside it. Near the north
.to was a guard-house, and the ruins of a church 110 feet in
ngth are also close by. From the mouldings which remain, it
pears to have been in different styles of architecture. An arch
hich is now standing, was restored by Lord Chichester. There
e also some remains of the Chapter House and the Prebendal
all. During the excavations in this quarter, some coffins were
und, two of which contained skeletons in a state of perfect
eservation. From the north gate the fortifications continue in
lofty wall, supported by towers which are still standing, and of
nsiderable height. One of them is circular, and contains a
ght of stone steps; the other has the remains of Norman win-
ws deeply splayed in the interior. The walls are generally
assive, some parts being built of lime and rubble, which seems
indicate a Roman origin; but the greater part is undoubtedly
orman work of an earlier period.

Several relics of antiquity dug up in the ruins are preserved
the lodge at the entrance, amongst which are a Norman spur,
cient keys, half of a Norman bridle-bit, a Saxon lamp-sus-
nder, a Roman chain-bridle, &c. The area of the castle is now
d out in lawns and flower-borders, but, in accordance with the
ne-honoured and peculiarly English fondness for "bucksheesh,"
cannot be seen without paying for it.

In the distribution of the spoils of the vanquished, after the
ttle of Hastings, the castle, which is supposed to have been
paired by William, was given, with the Rape* of Hastings, to
bert, Earl of Eu, by one of whose descendants it was forfeited
the crown in the reign of Henry III. In it William Rufus,
th his nobles, who had been summoned to do him homage prior to
departure, was detained more than a month by contrary winds.
Humphrey de Tilleul had the command of the castle till 1069,
en William the Conqueror, being engaged in the subjugation
the north, his vassal abandoned his post, and with many of his
nds returned to Normandy, preferring the quiet of their homes
the precarious possession of lands and honours in a foreign
untry. William was so incensed at this, that he forfeited
leul's estates, and could never be persuaded to restore them to his
rs. After passing through various hands, the lordship and
tle were sold, in the reign of Elizabeth, by the Earl of Hun-
gdon, to Sir Thomas Pelham, for £2,500. From the latter it
s descended to the present owner, the Earl of Chichester.

The legends relating to the castle are numerous. It is said
t in the reign of Henry VIII. an incident occurred somewhat
e, but more tragical than the adventure of Rebecca the fair
wess, with the amorous knight, Brian de Bois-Guilbert. The
narch, it is said, was staying at the castle, and was urging his
lawful suit with even more than his usual ardour, upon a lady
o was there likewise. To escape from his importunity and
pleasure, both alike terrible, she threw herself headlong from
northern turret, and was dashed to pieces on the beach below.
The account which has been handed down, relative to the de-
ction of the castle is horrible, if true. One of its possessors,
ing the reign of Henry, was Edgar, a jealous earl, and a great
ourite with the king. He had married one of the ladies of the
rt, an amiable and handsome woman whom he ardently loved,
it was love without confidence, and he at last came to the
nclusion that it was not returned, and "green-eyed jealousy"
antly took possession of him. He watched every movement
his bride with untiring vigilance, and at last began to place re-
aints upon her liberty. The unfortunate lady appealed to the
king, who ordered him to supply her with money, and place apartments in the castle at her sole disposal during her lifetime. The earl obeyed with reluctance, but resolved to observe her movements more closely than ever; and, on entering her room suddenly one day, he found her giving orders to her falconer. Transported with rage he killed the man on the spot, and gave his wife into the custody of his guard, and ordered a fire to be prepared in the court-yard to burn her and her child alive. The trembling retainers obeyed with reluctance. The unfortunate lady, after a few moments of heartrending prayer and entreaty, appeared to be resigned to her fate, and occupied herself in making trifling presents to her servants, and putting her affairs in order, until the pile was ready. Tied to the stake, the fire was applied to the logs, and the wind blowing high, the flames shot up with fury. The shrieks of the hapless woman pierced the hearts of every one present, but made no impression upon the earl, who stood by with folded arms and a smile of hate playing on his lips. His crime, however, had not reached its consummation when the alarm was given that the castle was on fire, and notwithstanding all the exertions made to save it, in a few hours nothing remained of the noble edifice but blackened walls and smouldering rafters. Remorse seemed to have seized upon Edgar. He ordered the ashes of his wife and child to be collected and placed in a stone coffin, and then quitted the country. He was never heard of more. The castle from that time mouldered away, and the merry laughter of children, and popping of champagne bottles at picnic parties are now the only sounds which are heard, where the war-horse once neighed, and the "warder's silver trump" resounded along hall, and court, and bastion.

The recognised salubrity and mildness of the air, together with the openness of the coast and smoothness of the beach, have long made Hastings a favourite and a recommended resort. The shore is not abrupt, and the water almost always limpid, and of that beautiful sea-green hue so inviting to bathers. The constant surging of the waves, first breaking against the reefs and next dashing over the sloping shingle, is not unwelcome music at midnight to the ears of all who *sleep* in the vicinity of the shore. Sir James Clark states that in winter Hastings is most desirable as a place of residence during January and February. "During the spring also it has the advantage of being more effectually sheltered from north and north-east winds than any other place frequented by invalids on the coast of Sussex. It is also comparatively little subject to fogs in the spring, and the fall of rain may be said at that time to be less than on other portions of the coast. As might be expected from the low and sheltered situation of Hastings, it will be found a favourable residence generally to invalids suffering under diseases of the chest. Delicate persons, who desire to avoid exposure to the north-east winds, may pass the cold season here with advantage. Owing to the close manner in which this place is hemmed in on the sea by steep and high cliffs, it has an atmosphere more completely marine than almost any other part of this coast, with the exception, of course, of St. Leonard's, which possesses the same dry and absorbent soil." The breadth and extent of its esplanade, also, and the protection afforded by the colonnades for walking exercise, are circumstances of considerable importance to the invalid, and render a conjoined residence at Hastings and St. Leonard's a very efficient substitute for a trip to Madeira.

Whilst in the neighbourhood, it should not be forgotten that a delightful excursion may be made to Battle Abbey, not more than six miles distant. The grounds are now in the possession of the Webster family, who have liberally thrown them open to public inspection every Monday. It is here that the "Battel Roll," a sort of primitive "Court Guide," is carefully preserved, and furnishes a list valuable to the antiquary and historian of those families who came over with William the Conqueror.

Hastings is a pretty, though old-fashioned town. A new suburb, called St. Leonard's, has recently sprung up, which adds greatly to the beauty of the neighbourhood. It is a sort of west-end, or fashionable quarter. The buildings are all very fine, and the air of quiet repose which pervades it, makes it now a favourite resort of invalids. Numerous country-seats belonging to the gentry of the neighbourhood are to be met with on every side, but there is nothing which gives such a charm to the land-

* Rape is a corruption of the Latin *ripa*, a bank or shore, and is a term peculiar to Sussex.

scape as the sea and sea-shore. Nowhere is the sea so glorious as at Hastings:—

"The broad bosom of the ocean keeps
An equal motion, swelling as it sleeps,
Then slowly sinking, curling to the strand.
Faint lazy waves o'ercreep the ridgy sand,
Or tap the tarry boat with gentle blow,
And back return in silence, smooth and slow.
Ships in the calm seem anchor'd, for they glide
On the still sea, urged solely by the tide."

For beauty of scenery, salubrity of air, for all in short that can delight the eye, and invigorate the frame, Hastings stands without a rival amongst the watering places of England, and to all those who long to escape from the heat and dust and smoke of towns during the summer months, no better retreat can offer itself.



RUINS OF HASTINGS CASTLE.

BUTTERFLIES AND MOTHS.

When Valeria visits Virgilia, during the absence of Coriolanus, she inquires—"How does your little son;" and, on receiving a reply, proceeds in a strain grateful to a mother's heart:—"O' my word, the father's son; I'll swear 'tis a very pretty boy. O' my troth, I looked upon him on Wednesday half an hour together. "I saw him run after a gilded butterfly; and when he caught him, he let it go again; and after it again, and over and over he comes, and up again." And how many of us have engaged in the same childish gambol: eagerly chasing the gorgeous insect, with bare head, and locks blown about by the wind, then nearing the object of pursuit, throwing down the cap on the grass exulting in its capture, and raising it gently only to find the butterfly was gone, or should it happen to be there—the chance of which may be one in a thousand—hastily seizing it to the injury of its beauty, or finding that by one vigorous dart it had escaped from durance, and again was free.

The poet of the Seasons invites our attention to this insect in after-life, as he says,—

"Behold! ye pilgrims of this earth, behold!
See all, but man, with unearn'd pleasure gay:
See her bright robes the butterfly unfold,
Broke from her wintry tomb in time of May!
What youthful bride can equal her array?
Who can, with her, for easy pleasure vie?
From mead to mead, with gentle wing to stray,
From flower to flower on balmy gales to fly,
Is all she hath to do beneath the radiant sky."

But not only do these insects fly "from mead to mead;" fo universally diffused as they are, in the flower-garden, they fl from blossom to blossom; on the mountains they dart forth, as w rustle through the heather; and in the forest they attract atte tion, glancing through its bright and sunny glades, or motionle as the lichens which variegate the trunks of its wide-spreadi trees. Nor do they merely delight themselves in the open ai the butterfly will pass from the garden to the dwelling, and i vite the capture of the young entomologist, as it settles on sor piece of furniture in an inner room. Its tribes are adapted every season, while their range is so varied and extensive. Sor appear with the primroses of spring; others in summer, with "t queen of flowers;" others with the rich and greatly diversifi dahlias of autumn; and He who sustains and defends the sno drop amidst cold and storm, enables one, at least, to sport abo the chrysanthemums of winter.

And then, what a lovely, splendid, and gorgeous race they ar

Not only are they conspicuous, but transcendant, among the creatures of whom it is said,—

"Lo! the bright train their radiant wings unfold,
With silver fringed, and freckled o'er with gold.
What atom forms of insect life appear!
And who can follow Nature's pencil there?
Their wings with azure, green, and purple gloss'd,
Studded with colour'd eyes, with gems emboss'd,
Inlaid with pearl, and mark'd with various stains,
Of lively crimson through their dusky veins."

Some exhibit gorgeous metallic hues; and others tints of different kinds rarely equalled, and not to be surpassed in the wide range of Nature. Nor are the markings of their wings and bodies less varied or less attractive. Lines, dots, circles, triangles, parallelograms, may there be observed, mingled with forms of endless diversity, defying all the terms of the mathematician, yet all traced and coloured by a pencil, which the painter, however gifted, will strive in vain to imitate. No wonder that Moore should exclaim,—

"And they, before whose sleepy eyes,
In their own bright Kathain bowers,
Sparkle such rainbow butterflies;
That they might fancy the rich flowers
That round them in the sun lay sighing,
Had been by magic all set flying."

The artist has depicted, in our engraving, some of these exquisite forms, and what they want in gaiety and splendour of hue must now be added, so far as it can be, in words—so that our readers may paint them for themselves—recalling, as the group does, the poetic description:—

"On the gay bosom of some fragrant flower,
They, idly fluttering, live their little hour;
Their life all pleasure, and their task all play,
All Spring their age, and sunshine all their day."

At the top of the engraving, on the left hand, is the Small Tortoiseshell Butterfly (*Vanessa urticæ*). It is abundant not only in England, but the adjoining continent, and is conspicuous for its beauty, and the lightness with which it flits from flower to flower. One brood appears in spring and another in autumn. It closely resembles, except in size, the Great Tortoiseshell Butterfly, which usually appears about the middle of July. It is rapid on the wing, often settling on dry pathways and the trunks of trees, delighting itself in the fervid rays of the sun. The colour of the wings above is dark orange-red, with a narrow vandyked edging of blue and a second of black; but its whole surface is beautifully and variously adorned.

Just beneath is the Fritillary of elegant form. The Fritillaries, for there is more than one kind, are among the most beautiful and the most common of their race; being met with in most parts of England—in woods and meadows, heaths and downs, during the months of June and July. Nature has been said, in allusion to the wings of butterflies, to have painted her canvas on both sides. The upper one is often more delicately pencilled than the lower, but it is not so with the Fritillaries. Their upper surface is reddish-brown and black, disposed in angular streaks or chequers, but the reverse of their richly scalloped wings is abundantly and richly adorned. Let, then, the reader look out for one of these beautiful creatures while it is visible; often may it be observed in the garden,

"Where, he arriving, round about doth flie
From bed to bed, from one to t'other border,
And takes survey with curious busy eye,
Of every flower and herbe there set in order;
Now this, now that, he tasteth tenderly,
Yet none of these he rudely doth disorder,
Ne with his feete, their silken leaves defaee,
But pastures on the pleasures of each place."

The next insect a little below the last mentioned, and towards the centre of the page, is the Cabbage-butterfly (*Pontia brassicæ*). It appears in April and May; the wings are white above, with a large patch of black on the tip of the anterior pair. The under surface of the wings inclines to yellow, the lower being finely powdered with black; the upper wings have two conspicuous black spots.

Returning to the outer line, we observe the Peacock's Eye (*Vanessa Io*), the colour of which is deep brownish-red, inclining to purple, with a large eye-like spot on each wing above; beneath, the wings are dark, shining brown, traversed by fine undulating lines of black. In the south and midland counties of England, this beautiful species is very common, but it is more rare in the north, and seldom seen in Scotland. It usually appears in July, flitting about the hedgerows, along shaded lanes, and about the borders of copses, alighting every now and then to sun its wings, and again starting off on its aerial flight.

Now comes the Red Admiral (*Vanessa Atalanta*), with its velvet-black wings, broadly banded with red, and relieved by white and blue. In all parts of our island it is very common, as well as over Europe; it is found in the districts of Africa bordering the Mediterranean, and in the United States of America. It seldom appears until late in September, with its plumage singularly fresh and perfect. In some years these butterflies abound, and then twenty of these beautiful creatures may be seen, expanding and closing their brilliant wings under the fruit-trees on our walls, or basking on the disc of some autumnal flower.

The butterflies now described, are succeeded by two specimens of British moths. The beauty and delicacy of their plumage, its fulness, and the marbled arrangement and blending of varied tints of grey, brown, black, and yellow, render the moths of our island not less attractive than the more gaily painted butterflies that flit about in the bright sunbeams of summer. In general, they are nocturnal in their habits; but a few, consisting of the Sphinxes, or Hawk-moths—of which the one on the right is a specimen—pass, in broad day, from flower to flower in quest of their honeyed food. Their progress through the air resembles that of the hawk—hence their name; but, as they buzz round a flower with their wings vibrating so rapidly as to be scarcely discernible, they strongly resemble the humming-birds. The larger figure is that of the Red Underwing, its name describing that part of the insect, except that it is fringed and marked with black.

Other butterflies are seen; among which two only can now be noticed. The Swallow-tailed Butterfly (*Papilio Machaon*), the largest of our indigenous butterflies—with its wings adorned with black, powdered with yellow, and relieved by bold yellow markings, will not fail to be observed. From the posterior margin of the hinder wings projects an acute slip, resembling the outer tail-feathers of the swallow (to which its name is owing), and at each inner corner is a spot of red, with an anterior crescent of light blue; the whole nearly surrounded by a ring of black. Above this, is the Purple Emperor, or Highflier (*Apatura iris*). Its general colour above is dark brown, changing in certain lights into rich purplish blue of metallic lustre, and relieved by marks of white. This splendid butterfly appears only in the oak-woods of the more southern counties of our island, and that not in abundance. It is seldom seen before the month of July, and may then be observed during the middle of the day, soaring on rapid wings high over the summits of the tallest oaks. It has been denominated "the purple emperor" of these trees, and pre-eminently verifies the words of Wordsworth:—

——— "Before your sight,
Mounts on the breeze the butterfly, and soars,
Small creature as it is, from earth's bright flowers
Into the dewy clouds."

Art has often had to do with these lovely creatures. Psyche means in Greek, the human soul; and it means also a butterfly; of which apparently double sense, the reason is that a butterfly was a very ancient symbol of the soul. From the prevalence of this symbol, and the consequent coincidence of the names, the Greek sculptors frequently represented Psyche as subject to Cupid, in the shape of a butterfly. For this reason it is, that when she appears in their works under the human form, it is decorated with the light and filmy wings of that gay insect.

Shakspeare gathers from it also an image for a class of persons, to be observed, unhappily, in every age: Lear, when "fourscore and upwards," thus pathetically addresses Cordelia:—



COLLECTION OF BUTTERFLIES. DRAWN BY FREEMAN.

——— "Come, let's away to prison:
We two alone will sing like birds i' the cage:
When thou dost ask me blessing, I'll kneel down,
And ask of thee forgiveness: So we'll live,
And pray, and sing, and tell old tales, and laugh
At gilded butterflies, and hear poor rogues
Talk of court news; and we'll talk with them too,—
Who loses, and who wins; who's in, who's out;—
And take upon us the mystery of things,
As if we were God's spies."

FLOWERS.



FROM A PAINTING BY VAN HUYSUM.

What a desolate place would a world be without a flower! It would be a banquet without a welcome, a face without a smile, a firmament without a star. But, happily, such a world is not ours; and the love of flowers seems a naturally-implanted passion, without any alloy or debasing object as a motive. Truly, indeed, does Cowper say,—

> "That man, immured in cities, still retains
> His inborn, inextinguishable thirst

Of rural scenes, compensating his loss
By supplemental shifts, the best he may.
The most unfurnish'd with the means of life,
And they that never pass the brick-wall bounds,
To range the fields, and treat their lungs with air,
Yet feel the burning instinct; overhead
Suspend their crazy boxes, planted thick
And water'd duly. There the pitcher stands,
A fragment, and the spoutless teapot there;
Sad witnesses how close-pent man regrets
The country, with what ardour he contrives
A peep at nature, when he can no more."

If, in the long and sombre months of winter, our love of nature, like the buds of vegetation, seems cold and torpid, yet, like them, it unfolds and reanimates with the opening year, and we welcome our long-lost associates with a glowing cordiality, as friends in a foreign clime. And then, what a rich and varied succession is it ours to enjoy!—

"Fair-handed Spring embosoms every grace;
Throws out the snowdrop and the crocus first;
The daisy, primrose, violet darkly blue,
And polyanthus of unnumber'd dyes;
The yellow wall-flower, stain'd with iron-brown;
And lavish stock that scents the garden round:
From the soft wing of vernal breezes shed
Anemonies; auriculas enriched
With shining meal o'er all their velvet leaves;
And full ranunculus of glowing red.
Then comes the tulip race, where beauty plays
Her idle freaks:
No gradual bloom is wanting; from the bud,
First-born of spring, to summer's musky tribes:
Nor hyacinths of purest virgin white,
Low bent, and blushing inward; nor jonquils
Of potent fragrance; nor Narcissus fair,
As o'er the fabled fountain hanging still;
Nor broad carnations, nor gay spotted pinks;
Nor, shower'd from every bush, the damask rose,
Infinite numbers, delicacies, smells,
With hues on hues expression cannot paint,
The breath of nature, and her endless bloom."

No wonder, then, that in so many lands there has been the desire to picture to the eye these lovely objects. From time immemorial the Persians, the Chinese, and the Japanese have found in them the choicest ornaments for their varied fabrics. On the discovery of the new world, the Spaniards observed flowers painted or sculptured with taste, on the religious monuments of its people; and were astonished on finding that Europe had nothing compared with the flowers in silver and gold, that decorated the palaces of the Mexican kings. France, Italy, and Holland have produced artists who have achieved distinction as painters of flowers. Our engraving represents one of the most highly esteemed works of Van Huysum, an eminent Dutch artist; and his claim to honour will at once be admitted. He was born at Amsterdam, in 1682; he was educated under his father, an artist of considerable talent, but chiefly remarkable as a flower painter, to which department his son bent the whole force of his mind. Determined to commence by making fame his object rather than money, he spared neither time nor pains to render his works perfect. His flowers, plants, and their accompaniments are finished with a delicacy, polish, and accuracy that almost delude the sight; nor is the apparent freedom of his pencil affected by this height of finish. He had also methods of mixing his tints, and preserving the lustre of his colours which, with a jealousy unworthy a man of genius, he never would communicate. The beauty of his works was so conspicuous that they soon obtained high prices, and latterly, none but persons of opulence could purchase them. Besides his merits as a flower painter, he excelled in landscapes; his pictures in which line are well coloured, while each tree is distinguished by a tint peculiar to its leafing. He died in 1749. Nor should it be overlooked that England has not followed in the rear of floral representation, and that she has still artists, such as Lance, Bartholomew, and Hunt, of whose works any country or any age might well be proud.

The vase of flowers now exhibited reminds us of the fact, that many plants which, in a state of nature, never present more than a single row of petals, begin to assume several rows under continued cultivation. To what then is this change attributable? The effects of a richer soil, and other genial circumstances, or the mere accident of double petals in one plant transmitted with improvements through its progeny, are the common explanations; and these are generally received as satisfactory, without reflecting that what we call accident is itself a result of some cause, and that change of condition must attack some physiological principle before it can have any effect in modifying the character of a plant.

To explain the phenomenon of double flowers, we must make practice agree with theory. Every double plant is, in fact, a monstrous vegetable. It lies beyond the proper range of the botanist, and with it the florist has properly to do. To produce such an anomaly, we must attack the principle of the flower's creation,—that is to say, the seed; and how to do this experiment will declare. If, for example, after having gathered the seed of a ten weeks' stock, we sow them immediately, the greater number of the seedlings will produce *single* flowers; but if, on the contrary, we preserve these same seeds for three or four years, and then sow them, we shall find *double* flowers on nearly all the plants. It appears, therefore, that in keeping a seed for several years, we so weaken it, that the energy which would otherwise have been expended in producing stamens, yields petals. A still further proof of our position is, that plants in their wild state, shedding their seeds naturally, and sowing them as soon as they fall to the ground, even in a long succession of time, scarcely ever produce plants with double flowers.

Anomalous, however, as the botanist must regard the double flowers, we shall still feel our obligations to the florist who charms us with their beauty and fragrance; and to the artists whose pencils and gravers present them so vividly before us that we are disposed to exclaim,—

"Where are the flowers, the fair young flowers, that lately sprang and stood
In brighter light and softer airs, and beauteous sisterhood?
Alas! they all are in their graves, the gentle race of flowers
Are resting in their lonely beds, with the fair and good of ours:
The rain is falling where they lie, but the cold November rain
Calls not from out the gloomy earth the lovely ones again."

VEGETABLE IVORY.

This article, now much used for ornamental purposes, is the produce of a palm found on the banks of the Magdalena, in the republic of Columbia, South America. The Columbians call it *Tagua*, or Cabeza de Negro (negro's head), in allusion to the shape of the nut: and the term *vegetable ivory* is given to it by Europeans, from the close resemblance it bears, when polished, to the animal ivory of the elephant's tooth. The Spanish botanists, Ruiz and Pavon, give it the generic name of *phytelephas*, or elephant-plant, distinguishing two species, the *macrocarpa*, or large-fruited, and the *microcarpa*, or small-fruited. The Indians cover their cottages with the leaves of this most beautiful palm. The fruit at first contains a clear insipid fluid, by which travellers allay their thirst; afterwards the same liquid becomes milky and sweet, and changes its taste by degrees as it acquires solidity, till at last it is almost as hard as ivory. The liquor contained in the young fruits becomes acid, if they are cut from the tree and kept for some time. From the kernel the Indians fashion the knobs of walking-sticks, the reels of spindles, and little toys, which are whiter than ivory, and as hard, if they are not put under water; and if they are, they become hard and white again when dried. Bears devour the young fruit with avidity. The part of the kernel which is similar to ivory is of the same nature as the meat of the cocoa-nut: this kernel becomes very hard in several palm-trees, such as the date, but not of sufficient size to be of value to the turner. The *doum*, or forking palm of Thebes, the fruits of which are called ginger-bread nuts at Alexandria, has a similar albumen, which is turned into beads for rosaries; and that of the double cocoa-nut, or *coco-de-mer*, is also susceptible of a fine polish.

FREDERICK PRELLER.

This distinguished German artist was born at Eisenach, on the 25th of April, 1804. Shortly after his birth, his parents removed to Weimar; where, showing at an early age strong indications of a very decided talent for art, he was placed as a pupil in the public drawing-school. In this institution he enjoyed the instructions of Meyer, a man who was more distinguished as a practical artist, than for his intimate acquaintance with the principles of art itself. Under the judicious training of this kind and excellent teacher, young Preller's artistic talents were assiduously cultivated and rapidly developed.

At the age of seventeen he went to Dresden, to acquire a wider and more varied acquaintance with art, by studying in the celebrated picture-gallery in that city. Here it was that he first gave evidence of his great talent for landscape-painting which the very favourable circumstances into which he was now thrown, enabled him to cultivate so successfully. After three years industrious application to this branch of art, the practical kindness of the grand duke, Charles Augustus, enabled him to remove to Antwerp, to study figure-painting in the academy in that city, under the direction of Bree. The paintings which he executed whilst here, were not more remarkable for their exquisite artistic finish, than for their perfectly truthful agreement in the minutest details of form and shade with their living originals. Before leaving Antwerp, he received two valuable prizes, at the yearly meeting of the members of the academy, in token of his great proficiency.

After a short visit to his home he went to Milan, in compliance with the wishes of his patron, the grand duke. But the chief wish of his heart was to visit Rome, which was at that time the common centre of attraction to aspiring artists all over Europe. This he was enabled to do in 1828. During the three years which he spent in Rome in the unremitting study and practice of his favourite pursuit, he acquired that perfect realisation of the peculiarly German idea of the reality of art, and especially of landscape-painting, which he had from the first perseveringly endeavoured to make his own. Still, on his return to Weimar, in 1831, his style was at first largely influenced by his Italian



DRAWN BY MÜLLER, AND ENGRAVED BY KRETZSCHMAR.

associations. But he soon became alive to the mistake, and presented his northern landscapes free from the misplaced and incongruous attributes of southern scenery. By the same earnest and persevering efforts which are essential to the attainment of every object of a laudable ambition, he at last attained that peculiar purity of style, and perfect truthfulness to nature, which have raised him to the distinguished rank which he now occupies in German art. As a landscape and figure painter he has no superior, if an equal, in Germany at the present day.

In 1846 he was chosen an honorary member of the Academy of Art at Dresden, and in 1849 the grand duke of Weimar created him a knight of the Order of the Falcon.

MONEY AS AN AGENT OF CIVILISATION.

Man has been defined "a speaking animal," a "cooking animal;" he might also be defined a "tilling animal," a "dressing animal," a "bartering animal," a "business animal," a "progressive animal," and so forth. Instinct is marvellous in many of its operations,—but it makes no progress—it learns nothing. The beaver fells the tree that hangs over the river or stream, floats it down the current to a suitable site for building, and then plants the stakes and erects the house. But if the timber do not chance to grow where there can be conveyance by water, if it must be sought for inland, the beaver does not make a contract with another animal to convey the building materials to the spot, and then give him in exchange articles which he may require, and which his own locality does not produce. The exchange of commodities is the work of the reasoning faculty, and shows that there is a great gulf fixed between man who walks erect, looks to heaven with a face reflecting the sunlight and the starlight, and is immortal, and the most sagacious of the lower animals. Trade is beyond the comprehension of the wisest monkey; neither the bee, the beaver, the dog, nor the horse, goes to market.

Man, on the other hand, in his rudest state soon learns the necessity of protecting property by some sort of law,—and the next step in his progress towards civilisation is the exchange of one kind of property for another. Barter is naturally the first form in which commerce is carried on. A man sees that he has more of one article than he requires for his own use, and that his neighbour has more of another than he requires; both agree to exchange a part. But this simple form of exchange is suited only to a society in a very primitive state, where the objects of exchange are few, and their value has not been definitely ascertained. Men soon feel the necessity of a *tertium quid*—some third commodity that will represent *value*, and may serve as a *medium* of exchange. The labour spent upon an article, and its scarcity, serve to indicate its value. Payments in kind are found inconvenient. A man expends a certain quantity of labour, for which he wants in return food and clothing for his family; but his employer has only corn, or cattle, which he must take in greater quantities than suits him. Hence inconvenience and loss. If he could get some article which is current as a medium of exchange, representing a certain value—whether of corn or anything else—with which he could go to the market and get what he pleased, a great advantage is gained,—a great step is made in social progress. Hence we find that money is *essential to civilisation*—it is the steam-power that impels the social machinery, and to which we are indebted for all its complicated operations and marvellous products.

Money removes at once all the difficulties of barter,—its clumsy, troublesome, and tedious proceedings, its uncertainties and blind guesses, by presenting a *standard of value* by which all commodities are measured, and have their exact *price* affixed. By representing a certain amount of labour, it leads to a division of employments, facilitates the operations of industry, and leads to the perfection of human skill. It may not be possible to find any article which will serve as an invariable standard of absolute value, for money itself, however precious the metal of which it is composed, must yield to the fluctuations of commerce, of which the present state of the gold market affords an example. We can only approximate to what is absolutely correct in this matter. But it answers the purpose sufficiently, in enabling the inhabitants of the earth to exchange its productions, so that human enjoyments may be, as far as possible, realised over the surface of the globe. In one country the most useful materials can be drawn from the bowels of the earth in unlimited abundance, while sterility reigns upon its surface; in another, the fruits of the soil teem in the richest profusion. By means of money the miner enjoys the best food and clothing which the earth produces in another hemisphere, and the dwellers in flat countries and fertile regions enjoy an ample supply of the precious metals for the raw materials of manufacturing industry, for currency and for ornament. Thus the division of labour, by the aid of an extended and active commerce, distributes over the world the advantages of soil, climate, and situation, obtained by experience and skill in each locality. Thus the modes by which industry becomes productive are endlessly multiplied and diversified; thus the grades of society are established, and the perpetual advance of civilisation secured.

In almost every age and country metals have been chiefly used as money. The Jews, the Egyptians, the Chinese, the Persians, the Greeks, the Romans, all used a metallic currency. From the earliest era of commerce to the present time, business has availed itself of this medium of exchange, though not excluding other articles, such as cowrie shells in parts of Africa, and paper in all highly civilised countries. Aristotle considered that the principal use of a metallic currency was, that its value was less fluctuating than that of other materials. On this account gold and silver became universally the recognised measures of value and mediums or exchange. In the earliest ages they were exchanged in bars, and valued by weight and fineness only. The same custom has prevailed to our own time in China, where there was no silver coinage; but the smallest payments, if not made in the copper *tchen* were effected by exchanging bits of silver, whose weight was ascertained by a little ivory balance on the principle of the steelyard. According to Davis, the Chinese affect much accuracy in the art of *assaying*, or testing the purity of the precious metals. The stamped ingots of silver in which their taxes are paid are required to contain 98 parts in 100 of pure silver. Yet at Canton an enormous trade in opium has been conducted entirely in Sycee silver, which has been found to contain so large an admixture of gold, that it bears a premium of 5 or 6 per cent for exportation to England. The assayers who allowed gold to pass for alloy in their silver, cannot be much relied on in detecting the presence of baser metals in their currency. "To obviate this difficulty, coinage was introduced, by which portions of gold, silver, and copper have been impressed with distinctive marks, denoting their character, and hence become current under certain denominations, according to their respective weight, fineness, and value. These coins have always been issued by the government of each country as a guarantee of their genuineness; and the counterfeiting of them has been punished as a serious offence against the state."

Coining was practised very early. Homer speaks of brass money as existing nearly twelve centuries before Christ. The invention of coin is ascribed to the Lydians, a commercial people, whose money was gold and silver. Phydon, tyrant of Argos, coined both, 869 B.C. Money was coined at Rome under Servius Tullius about 578 B.C. The most ancient known coins are Macedonian of the 5th century before Christ. Brass money only was in use at Rome till within 269 years of the Christian era, when Fabius Pictor coined silver; "a sign," says Dufresnoy, "that little correspondence was then held with the East, where gold and silver were in use long before." Gold was coined 206 years before Christ. Iron money was used in Sparta, and iron and tin in Great Britain. Julius Cæsar was the first who obtained the express permission of the senate to place his image on the coins; an honour which had till then been confined to the gods, or to departed heroes who had received divine honours.

The first coinage in England was under the Romans, at Colchester. English coin was of different shapes, square, oblong, and round, until the middle ages—when the round only was used. Groats were our largest silver currency till after the year 1351. Coin was made *sterling* in 1216; before which time rents were mostly paid in kind, and money was found only in the coffers of the barons. The first gold coins on certain record were struck by Henry III., A.D. 1257. Shillings were first coined in 1503;

crowns and half-crowns in 1553. The first shilling was struck n 1560. In 1660 the copper coinage put an end to the circulation of private leaden pieces. Halfpence and farthings were first ssued in 1665. Guineas were first coined by Charles II. in 1673, and these were followed by double-guineas, five-guineas, and half-guineas. Quarter-guineas were coined by George I. in 1716. Henry VIII. had coined sovereigns and half-sovereigns of the modern value; but the guineas were composed of finer gold, and passed for more. Gold coin was introduced in six-shilling pieces by Edward III. *Nobles* followed at 6s. 8d., and hence the lawyer's fee.

Queen Elizabeth coined £5,832,000; James I., £2,500,000; Charles I., £10,500,000; Cromwell, £1,000,000; Charles II., £7,524,000; James II., £3,740,000; William III., £10,511,900; Anne, £2,691,626; George I., £8,725,920; George II., £11,966,576; George III. and the Regency, gold, £74,501,586; George IV., £41,782,815; William IV., £10,827,603.

In 1711 the coin of the realm was about 12 millions; in 1762 it was 16 millions; in 1786 it was estimated at 20 millions; and in 1800 it had reached 37 millions. In 1830 the Duke of Wellington stated that the gold was 28 millions, the rest of the metallic currency 13 millions, while paper largely supplied the place of coin. The English were ignorant of the art of coining till 1278, the Mint having been kept by Italians. The operators were formed into a corporation by the charter of Edward III., consisting of the warden, master, comptroller, assay-master, workers, coiners, &c. Between 1806 and 1810 grants amounting to £262,000 were made by parliament for the present building. The new constitution of the Mint, founded on the report of Mr. Wellesley Pole, took effect in 1815. Burke, in his speech on economical reform, in 1780, proposed that the Mint should be abolished as a public establishment, and that the Bank of England should take charge of the business of coining. "The Mint," said that great man, "is a manufactory, and it is nothing else, and it ought to be undertaken on the principle of a manufactory: that is, for the best and cheapest execution, by a contract, upon proper securities, under proper regulations." By a provision in the Act of Union with Scotland, the establishment of the Mint was maintained above a century after that event in Scotland, though all money was coined in England.

In almost all countries the coinage has been debased by the government; indeed, this was formerly a common artifice for increasing the revenue and robbing the subject. This was done by diminishing the quantity of metal of a standard fineness,—by raising the nominal value, and ordaining that the coins should pass at a higher rate, and by leaving them of the ordinary weight, but adding a large portion of alloy. In England, the debasements from the Conquest to the reign of Elizabeth amounted to 65 per cent. on the whole. And in a period of 115 years, from 1 James I. to 1 George I., the value of gold coins, as compared with silver coins, was artificially raised 39 per cent.

Our coinage not only fixes the weight and fineness of gold, but also the standard price of bullion. But this law cannot control the market. If the market price of gold remain for some time as it is now, considerably lower than that fixed in the Bank of England, the coin will be depreciated in value, and will pay for less; that is, the price of commodities will be nominally raised. On the other hand, if the market price of gold were higher than the standard price, sovereigns would be melted down in order to sell the metal for the profit that could thus be made.

Gold is the standard in England, silver on the continent. Ours is much more convenient. We can carry in a small purse what a Frenchman would be obliged to hire a conveyance for, to pay the same amount.

In the great operations of commerce, however, bargains are very rarely paid for in any coin whatever. They are conducted on a system of credit by means of paper,—either the "promissory notes" of the banks, or the bills of exchange which the banks discount. It is for the smaller transactions only—the innumerable bargains of daily life among the busy masses—that a metallic currency is needed.

The Rothschilds and other great millionaires lend millions of money to carry on wars, feed armies, and pay debts, by signing their names on scraps of paper.

VELOCITY AND MAGNITUDE OF WAVES.

The velocity of waves has relation to their magnitude. Some large waves proceed at the rate of from thirty to forty miles an hour. It is a vulgar belief that the water itself advances with the speed of the wave, but in fact the *form* only advances, while the *substance*, except a little spray above, remains rising and falling in the same place, according to the laws of the pendulum. A wave of water, in this respect, is exactly imitated by the wave running along a stretched rope when one end of it is shaken; or by the mimic waves of our theatres, which are generally the undulations of long pieces of carpet, moved by attendants. But when a wave reaches a shallow bank or beach, the water becomes really progressive, because then, as it cannot sink directly downwards, it falls over and forwards, seeking its level. So awful is the spectacle of a storm at sea, that it is generally viewed through a medium which biases the judgment; and, lofty as waves really are, imagination makes them loftier still. No wave rises more than ten feet above the ordinary level, which, with the ten fee; that its surface afterwards descends below this, gives twenty feet for the whole height, from the bottom of any water-valley to the summit. This proposition is easily proved, by trying the height upon a ship's mast at which the horizon is always in sight over the tops of the waves; allowance being made for accidental inclinations of the vessel, and for her sinking in the water too much below her water-line at the instant when she reaches the bottom of the hollow between two waves. The spray of the sea, driven along by the violence of the wind, is of course much higher than the summit of the liquid wave; and a wave coming against an obstacle, may dash to almost any elevation above it. At the Eddystone Lighthouse, when a surge reaches it, which has been growing under a storm all the way across the Atlantic, it dashes even over the lantern at the summit.

OBERWESEL.

In descending the Rhine between Kaul and the Pfalzgrafenstein, the towers of Wesel are seen rising from a dark and rocky background, and above them the commanding ruins of the castle of Schönberg. This fortress was built by the Lords of Schönberg, who were all powerful during the middle ages in Wesel, and in the last centuries, under the title of Counts of Schömberg, were created grandees of Portugal, and peers of England, for their military deeds. The romantic spirit of the inhabitants of the Rhineland, however, derived the name of the castle from seven beautiful ladies who once inhabited it, and are said to have captivated every one who beheld them by their charms. On account of their vanity, these seven noble ladies are said to have been transformed into the seven pointed rocks which, at low water, are seen just below Wesel, and are called by the boatmen the "seven sisters." The tradition further says that, if these seven rocks were raised from the river-bed, and used to build a chapel, the "seven sisters" would be freed from the enchantment which at present enchains them. The situation of Oberwesel is one of the most romantic, and, to judge from the numbers of artists who visit it, picturesque parts of the Rhine valley. Above and below the town two green vine-covered valleys run into the hills, enclosing between them the old-fashioned buildings, the sombre, turrets, tall spires, and quaint towers of Oberwesel. The churches are worthy of observation, especially the slender spire of the Church of our Lady, which attracts the attention of every passer by, by its singularly-shaped tower. The interior of this church is most interesting to the antiquarian; the richly-ornamented *lectorium*, and the carved altar, with its folding doors, in which designs are executed with a sharpness and beauty such as is even seldom seen in stone. Not far from this church stands the old gate, but the road no longer leads through its grey walls into the town. At the opposite end is a tower such as we find at Andernach; the most extensive view is, however, to be obtained from the church of St. Martin. The small old church, which is built into the wall, is said to have been dedicated to the memory of some children who were supposed to have suffered martyrdom at the hands of the Jews. Another curiosity of Oberwesel, and one which all visitors are taken to inspect, is the footprint of St.

Hubert's horse in the market-place, although tradition does not state the manner in which it became impressed in the pavement.

Oberwesel was for a long time under the rule of the Counts of Arnstein, but when that family became extinct, on the death of Ludwig III., in the monastery which bears his name, it, with his other possessions, fell to the Schönbergs. It did not, however, remain long in their hands, for, after some very arbitrary and tyrannical measures toward the inhabitants, Frederick II. placed the townships under the protection of the empire. As one of the most powerful imperial cities of the Rhine, its prosperity dates from this time, and the neighbouring Counts of Katzenellenbogen considered it an honour to be called citizens of Oberwesel. Under the reign of Heinrich VII., however, this prosperity began to be on the wane, for the Emperor pledged Wesel and Boppard to his brother Balduin of Treves, which reduced both to the rank of market-towns. It was certainly not without a struggle that the people of Wesel submitted to this new yoke, but they soon discovered that they were powerless in the hands of the stern Balduin and the fiery Kuno of Falkenstein. Under his successor Werner, they, however, opposed force to force, and founded their protest against the bishop's encroachments on the privileges granted by Frederick II. An obstinate struggle followed, in which they were compelled to acknowledge the supremacy of Treves, but nevertheless gained an acknowledgment of their privileges and municipal charter.



OBERWESEL ON THE RHINE.

Not far below Oberwesel is the celebrated Lurlei Rock, the Scylla and Charybdis of the Rhine, which has furnished the subject for many a page of German romance or traditionary ballad,

END OF VOLUME I.

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AND

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THE

ILLUSTRATED EXHIBITOR

AND

Magazine of Art.

JULY, 1852.



POPE URBAN II. PREACHING THE CRUSADE IN THE MARKET-PLACE OF CLERMONT. DRAWN BY J. GILBERT. ENGRAVED BY H. LINTON.

THE FIRST CRUSADE.

During the greater part of the eleventh century, the efforts of the papacy were directed to the introduction of order and law into the chaos of confusion and disorganisation which prevailed throughout Europe after the downfall of the Roman empire in the west. The church was the only remnant of the old system which had survived the onslaught of the barbarian hordes of the north. The clergy were men learned in the laws and language of the mighty dominion whose overthrow they had survived. They had the polish, the grace, and the refinement of the Augustan age; and though sensible that they did not possess its genius, they clung no less fondly to its traditions. For centuries after Christ, the priests of his religion found themselves rising in worldly power and importance, until at last the empire and its institutions were modelled to suit their tastes or caprices. For them were the literary réunions, the charms of poetry, music, and painting. Whatever the degenerate arts of that age could still furnish to soothe the ear, or delight the eye, was pressed into the service of the church. A bishop was not merely a ruler over God's household, but a man of elegant tastes, the centre of a circle of gay loungers, who passed the day in a surfeit of sensuous or intellectual pleasure. Fashion ruled the world then as now. The vices of the upper classes took root amongst the lower, and bore bitter and dangerous fruit. The martial exercises and manly courage of their ancestors were repudiated as coarse and degrading, and to hired barbarians was abandoned the defence of an empire already tottering to its fall. The Roman aristocracy did not awake from its inglorious dreaming till the hoofs of the wild horses from the forests of Germany were ringing on those giant causeways, which thirty generations had trodden and admired. The song, and the dance, and the versifying, were protracted till the hoarse shouts of the barbarians and the clash of their arms roused the monks in their cells, and made the fair daughters of the Roman nobility start and turn pale in the voluptuous retirement of the Italian convents.

The empire fell like a moss-covered wall. From the German ocean to the Mediterranean sea, and from the shores of the Atlantic to the banks of the Danube, not a trace remained of the power and greatness of old Rome, save the church alone.

And the church in this fearful crisis did not prove herself unworthy the renown of the energetic men who had first promulgated her doctrines. Physical resistance to the inroads of the conquerors was at an end for ever, but there still remained the moral weapons which had vanquished Rome herself when in her prime, and happily for mankind there were also the courage and skill to use them with effect. The fiercest and hardiest of the German tribes bowed before a power whose authority was not, like their own, founded on force, and whose behests were uttered with the hand raised to heaven. Unlike the Valhalla in which the well-beloved of Odin were to revel, human valour could not purchase its rewards, nor avert its punishments, if the soul did not acknowledge its supremacy.

Its victory was soon complete. The barbarian armies embraced the new faith in troops, and believed in its doctrines as well as their rude intellects would let them. They became monks and priests and bishops, but did not by any means abandon their old habits. Hence, for two or three centuries we find the popes, and the most enlightened of the kings, such as Charlemagne and St. Louis, thundering threats and excommunications against the clergy, who plundered travellers on the highways, oppressed the poor, lived in open adultery and fornication, debauched the women of the neighbourhood, married their sisters, and committed other crimes too gross for a modern writer even to mention.

The efforts of the more spiritual and refined clergy of the south were for a long time vigorously directed to the extirpation of these abuses. Towards the close of the eleventh century they were at length partially successful. The lewdness of priests was no longer proverbial. They began to abstain from notorious evil living, and to put on at least the form of godliness. The masses of the people oppressed and down-trodden by the nobility, without security for their lives or property, or any appeal against the grossest injustice, turned with eagerness to any one whose wor gave them a ray of hope of a better life in the world to come, ar whose conduct and example gave weight to their precepts. Man good men, appalled by the hideous disorder which pervaded Eu rope, were brooding in morbid bitterness of soul over the degen racy of the age, and were imploring the successors of St. Peter give them but a glimpse of that heaven, the keys of which the held, that seeing its blessed repose, they might take heart again

Council after council was called to reform the manners of th fathers, and at last the inferior orders began to show themselv worthy of the ghostly pre-eminence which the people were willi to assign them. Then, indeed, religious fanaticism amongst a orders of men began to seethe and hiss with excitement. Whe was it to find vent?

A man of small account answered the question. He was a po hermit, born at Amiens, in the province of Picardy in Franc He was the son of a gentleman (*gentilhomme*), and had in ear life, as became his rank and descent, devoted his attention to arm alone, and served under the neighbouring counts of Boulogn It was, however, his misfortune to be married to a woman, wh though noble, was both old and ugly; and disgusted, we may co clude through her instrumentality, with the pomps and joys life, he separated from her and immured himself in a conven His restless spirit soon prompted him to undertake a pilgrima to the Holy Sepulchre, about twenty years after the capture Jerusalem by the Turks. While there he was pained and anger to see the cruelties practised by the Mahometans upon the po devotees who thronged to the sepulchre, and on his way hon paid a visit to the patriarch of the Greek church in Constant nople, with the view of inducing him to invoke the aid of th eastern emperor to protect his fellow-Christians when worshippi at the tomb of the Saviour. But the patriarch told him wit sorrow and vexation of the weakness and degradation of the d scendants of the Cæsars, and assured him with tears in his eye that far from making themselves feared at Jerusalem, they wou be unable to defend their own capital, were the Turks to attack i "Well," exclaimed the hermit, "I will rouse the martial natio of Europe in your cause." The astonished patriarch dismiss him with letters of credit and complaint. In the east this herm was called Cuckoo Peter; in the west Peter the Hermit.

It is a curious psychological fact, that the greater the emaci tion of the body the more lively does the fancy become. In the la stages of starvation the mind is filled with waking dreams, i which scenes of passing brilliancy and glory are vividly depict to the eye. The cell of the fanatic who macerates his body an denies his appetite to the extremity of endurance, is throng with ministering angels who protect the mortal tenant from th assaults of hosts of fiends, ready to devour him. From dreamin he readily passes to believing, and when he believes, he pr phesies.

Peter the Hermit was one of the many examples which a creeds have furnished of the astounding influence of the sta of the body on the mind He was the Loyola of a ruder age. O his return from Jerusalem, he was the fanatic of fanatics. H raging enthusiasm overcame all the disadvantages of his person appearance, even at a period when corporeal beauty was one the best recommendations to popular esteem. Though he le his wife for her ugliness, he was himself anything but hand some. His stature was small, and his whole aspect calculated t inspire contempt; but his eyes flashed like coals of fire fro under his shaggy eyebrows. He was gifted with great fluenc of speech, and the force of personal conviction lent vehemence t all he said. When he appeared before Urban II., his holine hailed him as a prophet, promised to call a council to support h scheme, and encouraged him to preach a crusade against th infidels throughout the length and breadth of Europe.

He was not slow in obeying the pontiff's injunction. H travelled through France and Italy mounted on an ass, bearing heavy crucifix on his shoulder, his head bare, his feet naked, h meagre body clothed in a coarse and dirty garment. Every where, in palaces, cottages, churches, in the fields and by th

oad-side, he called upon the people to repent and arm for the escue of the Redeemer's sepulchre, and the protection of the retched pilgrims from Moslem cruelty. He was by no means killed in rhetoric, but he made up for the want of art by earnestess and fervour. When breath or words failed him, he sighed, roaned, and shed tears. When he had exhausted his resources n reason or argument, he invoked the saints and angels and the nother of God to witness to the truth of what he said. He had onversed with them all. He had seen Christ in a vision, and letter had dropped from heaven pointing out the course he was o pursue. No orator of ancient or modern times ever swayed he multitude as he did. Such is the might of earnestness and eligious enthusiasm.

Gregory VII. had already rendered the idea of a crusade amiliar to the minds of the people. In one of his epistles he eclared that from each side of the Alps fifty thousand followers f the cross were ready to march under his command to the escue of the Holy Land from the infidels; but the enterprise vas, after all, reserved for Urban II.

In accordance with his promise the latter summoned a council t Placentia, to take the subject into consideration. So great was he excitement respecting it, that it was attended by two hundred ishops of Italy, France, Burgundy, Swabia, and Bavaria, by our thousand of the inferior clergy, and four thousand of the aity, and sat for seven days in a plain adjoining the city, as no uilding could contain so vast a multitude. An ambassador from Constantinople appeared to plead the cause of the emperor his naster, whose capital was already threatened by the Turks, and he subtle Greek bringing all the devices of a well-trained orator o bear upon the rude assemblage, drew so touching a picture of he miseries and danger of the eastern Christians that hundreds ourst into tears and sobbed like women, while a host of valorous knights loudly proclaimed their intention of marching speedily o their aid. The council broke up in the midst of intense excitement.

The final decision of this great question was however postponed till the meeting of another synod. This was to be held in Clermont, a town of Auvergne in the south of France. The pope had a double motive in this choice of a place. The first and most important was, that he knew his main dependence in an enterprise of so much hazard and daring must be upon the French, then as reckless, daring, and greedy of glory as they are now. There was a tradition amongst them, set afloat by the popular romance of Turpin,* that Charlemagne had conquered the Holy Land, and many of the knights and barons were desirous of emulating his fame. The other was, that he was himself a native of France, and was desirous of revisiting in the zenith of his power and splendour the scenes which he had quitted in poverty and obscurity.

The council at Clermont was attended by the Roman cardinals, by thirteen archbishops, two hundred and twenty-five bishops, and numerous minor saints and doctors. Lords and knights and men at arms came in crowds from every quarter, and many thousands in November, 1095, pitched their tents in the fields around the city. The sittings lasted for eight days. The "Truce of God," during which armed quarrels were to cease for four days of the week, was confirmed; women and priests were placed under the safeguard of the church, and a protection of three years was extended to merchants and husbandmen, then the daily victims of military rapine.

Then came the closing scene. The clergy who had attended the council of Placentia had on their return preached in every diocese the merit and glory of a crusade against the infidels. And when, therefore, Urban appeared in his pontifical robes, the tiara on his head, a canopy held over him by the attendant clergy, and mounted on a lofty scaffold in the market-place, the vast multitude who had assembled to hear him were well prepared to drink in his words, and applaud them. It required but little eloquence to arouse them. In his discourse Urban curiously collected all the passages of Scripture which relate to the Holy Land. God, said he, particularly loves the gates of Sion, Israel is his heritage, the vine of the Lord is called Sabaoth in Israel; and it is because it is written that Abraham ought to drive his son and servant into the desert, that, according to him, the Christians are equally held to drive back into the desert all the Ishmaelites his descendants. He was repeatedly interrupted by shouts from the clergy, who understood Latin, of *Deus vult, Deus vult!* "God wills it, God wills it!" but the ignorant laity taking up the cry, rendered it in their corrupt Provençal or Limousin idiom, *Deus lo volt!* or *Diex el volt!* But in whatever language uttered the shouts were equally loud and enthusiastic. "It is, indeed, the will of God," replied the pope; "and let this memorable word, the inspiration surely of the Holy Spirit, be for ever adopted as your cry of battle, to animate the devotion and courage of the champions of Christ. His cross is the symbol of your salvation; wear it, a red, a bloody cross, as an external mark on your breasts or shoulders, as a pledge of your sacred and irrevocable engagement." Thousands of knights and warriors were standing around, and they rent the air with their acclamations, and joyfully accepted the proposal. Crosses were forthwith sewed upon their shoulders, in gold, or silk, or cloth, according to the rank or inclination of the wearer. It is this scene which our artist has endeavoured to depict.

Peter the Hermit then addressed them in a livelier and more earnest strain, and excited an enthusiasm amongst the audience, from which the pope himself was not exempt. "You are come to hear with us, my dear brethren," said he, "and we cannot speak without profound sobs, by how many calamities, by how many sufferings, by how many cruel contritions, our Christian brethren, members of Christ like us, at Jerusalem, at Antioch, and in the rest of the towns of the east, are flagellated, oppressed, and injured. These are your brethren, sprung from the same blood, destined to the same grave; they are sons like you of the same Christ, of the same God, and in their own hereditary houses they are made slaves by foreign masters. Some are driven from their dwellings and come and beg among you; others, more unhappy still, are sold, and overwhelmed with blows upon their own patrimony. It is Christian blood, purchased by the blood of Christ, that is overthrown; it is Christian flesh, of the selfsame nature as the flesh of Christ, which is delivered to opprobrium and to torment." *

All necessary preparations were now made for the approaching event. Every motive which can sway the heart of man was held out to swell the ranks of the crusaders. The doctrine of satisfying the justice of God by inflicting punishment on the body was at this time fast gaining ground, until at last a scale was formed by which the penitent could exactly ascertain the number of years of torture in purgatory from which a given number of lashes in this world would free him. Crimes could then, as now, be atoned for also by the purchase of indulgences; and the purses or bodily endurance of many heinous sinners were beginning to be exhausted, when the crusades opened up a delightful prospect of an easy riddance from all their transgressions. An absolute release from all reversion of punishment in the next world was promised to those who joined in the holy war; and, in addition to this, the riches of the east, the flavour of Greek wines, and the beauty of Greek women furnished inducements, which neither the vows nor the calling of these devout men could induce them to overlook. Peasants, nobles, lawyers, soldiers, students, forsook their occupations and rushed to the Holy Land in a vast body, undisciplined, unorganised, unofficered, half armed, and led by a few crazed monks and knight errants. The result may be guessed. Thousands died of hunger by the way, thousands fell victims to disease, thousands were killed by the inhabitants of the countries through which they passed, and the remnant perished miserably in Palestine, under the swords of the Saracens, whitening the sands with their bones; and of this mighty enterprise nothing remains but a wondrous story to delight the ardent imaginations of youth, by the fierce enthusiasm and reckless valour which it portrays, or furnish subjects for the artist's pencil or the novelist's fancy to work upon.

* Gibbon says in a note, "John Tilpinus, or Turpinus, was archbishop of Rheims, A.D. 773. After the year 1000, this romance was composed in his name by a monk, of the borders of France and Spain; and such was his idea of ecclesiastical merit, that he describes himself as a fighting and drinking priest!"

* Sermo Urbani Pap. ex Sched. Bibl. Vaticanæ, p. 514.

ROCKS AT CAPRI.

Capri is an island off the coast of Naples, possessing some of the finest natural scenery in the world. Here Tiberius Cæsar, one of the worst of the Roman emperors, had two palaces, and in the vaults and dungeons of these inflicted most horrible tortures upon those who had incurred his anger. Of these nothing now remains but the ruins. The views on the sea-shore are of surpassing beauty, and bring great numbers of tourists to the island. It was formerly subject to earthquakes and volcanic eruptions, and the lava still remains in many places in huge rocks of fantastic shapes.



NATURAL ARCH AT CAPRI.

THE BRIDGE OF CAUTERETS, IN THE PYRENEES.

The village which gives its name to the valley of Cauterets, occupies an admirable position. Its houses are all constructed of marble and covered with slates. Any one who spends two days in this romantic locality will have full opportunity of observing its varied attractions, its sulphur baths at Raillére, the Grotto of Manhourat, the baths in the woods, the Cascade of Cerisaio, the bridge of Spain, and the Lake of Gaubo. This beautiful bridge, so rough, so wild, is faithfully represented in our engraving. The precipitate torrent, in its headlong fall, gurgling and splashing with a wondrously wild music, the strange outline of the sombre



THE BRIDGE OF CAUTERETS.

rocks, the full trees, the distant forest, all adding fresh beauty to the scene. Once seen, such a prospect is not easily forgotten, nor is the forest of the Druids less remarkable. To cross that bridge, when all but the cataract is still and quiet, is terrible enough, but to meet upon that bridge a hostile force of brigands—to struggle for the life above the tumbling water, is still worse. Our view presents us with the representation of such an event, and the heart shudders and grows cold at the pictured danger.

HISTORICAL NOTICES OF ACADEMIES AND THE EXHIBITION OF WORKS OF ART.

The public exhibition of works of art has been practised in varied forms in all countries, and at all times, ever since art first began to flourish. The Grecian artists were in the habit of consulting the opinions of the people by exhibiting their works in some public place, or in the porticoes of their own houses. In those days it required taste and an appreciation of the beautiful, properly to discharge the duties of a citizen. Phidias himself, after having modelled his Olympian Jupiter, appealed to the judgment of the people. These exhibitions in Greece were of two sorts:—first, for the selection of those works which were to be retained as national property; second, to establish the relative superiority of artists, and for public instruction and progress in art. We can form but an imperfect idea of the solemnity of these judgments. Sometimes these opinions were pronounced by artists themselves, but they were usually proclaimed by the acclamations of the multitude. Another species of exhibition was made at the annual fêtes when the artists united in embellishing the temples, and adding magnificence to the costly ceremonials by the production of their finest works, paintings sculptures, vases, tripods, &c. &c.

In the great epoch of modern art,—namely, in the fifteenth, sixteenth, and seventeenth centuries such exhibitions were made at irregular intervals, if we omit the works which decorated the churches and other public places where they were continually to be seen. All this time at Rome, at Florence, Venice, and Bologna, the republic, the popes, and the princes, directly any work was finished, exhibited it to the people. In the year 1502 Michael Angelo and Leonardo da Vinci exhibited the celebrated cartoons which were to be executed in the grand hall of the palace of Florence. In 1401 the magistrates of Florence being desirous of obtaining two fine gates of bronze, covered with figures in bas-relief, to enrich the Baptistry of St. John, invited all the artists in Italy to submit their models; seven were selected for exhibition, and the result was the admirable gates of Ghiberli, the finest work of modern sculpture.

But at Rome, in the beginning of the seventeenth century, a periodical art exhibition was founded. A society, called by the Italians a "*congregazione di virtuosi*," instituted two public exhibitions of pictures at Rome, during the feasts of St. Joseph and St. John. These were held in the Pantheon, and were open to all the connoisseurs of Europe.

At Paris, under Louis XIV., there were two exhibitions of works of art; one in 1673, in one of the courts of the Palais Royal; the other in 1704, in the grand gallery of the Louvre.

The first of the exhibitions which were held in the grand saloon of the Louvre began on the 18th of August, 1737, and ended the 1st of September. The works contributed were small in number, not more than 220 pictures having been sent in. This exhibition was intended to be made annually, but the regular course was occasionally interrupted. The saloon was not originally suitable for the purposes to which it was devoted. The numerous windows cast a false light upon the paintings, and produced incongruous effects, the building was, however, considerably altered and adapted for such exhibitions.

In 1789 the painters, sculptors, and engravers of Paris, united together under the title of "The Academy of St. Luke," and exhibited their works during the month of June, in the halls of the Arsenal.

The revolution produced a change in these matters; a decree of the 21st of August, 1791, authorises all French artists and strangers from foreign lands to participate in these exhibitions. The response to this invitation was so great that not only the gallery of the Louvre, but the whole of the gallery of Apollon, with other extensive rooms, were appropriated to their reception, and an annual exhibition was established.

In the first years of their establishment these exhibitions lasted only twelve days; their duration was afterwards increased to one month, in 1765 to five weeks, and lastly to two months. After the restoration of monarchy fresh alterations were made, and the exhibitions of later years have been characterised, not only by the number, but by the excellency of the works exhibited.

The Royal Academy of St. Ferdinand, at Madrid, was established by Ferdinand VI., in 1752. The painters of Madrid struggled long to obtain the privilege, but ineffectually; the establishment of the Academy was reserved for Ferdinand VI., and the institution was named after that king. Sixteen years later, and the Academy of San Carlos was established at Valencia, by Charles III. Saragossa has also its Royal Academy. An Academy was established at Barcelona in 1788.

In Germany there are upwards of thirty academies. Augsbourg is said to have its guild of painters, with St. Luke for its patron, as early as the thirteenth century. The oldest German Academy of Arts is that of Nuremberg, which was established in 1662. The Royal Academy of Arts at Berlin was established in 1699. Another was formed at Dusseldorf in 1767, by the Elector Carl Theodore, and was situated in the building erected by the Elector Johann Wilhelm for a picture gallery in 1710. There is no Academy at Frankfort, but the place of one is admirably supplied by the Städel Art Institution. The Academy of Painting at Vienna was founded by Joseph I., in 1705; it was improved by Charles VI., in 1726; but was first created an Academy of the Arts of Design by the Empress Maria Theresa, who united various institutions, under the title "Akademie der bildenden Künste." The present Imperial Royal Academy was established by Francis II., in 1800. The Academy of Dresden was formed in 1705. But however interesting may be the history of academies, and the exhibition of works of art, in other lands, there is something more interesting to us in the detail of English art institutions, their rise, progress, and present state.

In the reign of the first Charles (1635) the Museum Minervæ was established for instruction in the art of design. It was situated in Covent-garden. This, however, was not confined to tuition in drawing; science, languages, fortification, and even riding were taught: but none except such as could prove themselves to be gentlemen were permitted to study there. With such exclusive rules, as might be expected, the Museum Minervæ did not survive the revolution. The rough struggle between roundheads and cavaliers saw the end of it. In 1724 Sir James Thornhill opened an Academy of Art in Covent-garden. Through Lord Halifax, Sir James had before attempted to obtain the foundation of a Royal Academy of painting, but in vain. He had even estimated the expense and made a design for the building. A few years afterwards he opened a Gallery in Whitehall. An advertisement notifying the opening of this Gallery appeared in the *London Chronicle* of February 25th, 1758.

The first of the series of efforts which ended in the formation of our Royal Academy, was the establishment of a "Life School, or Living Model Academy, which was begun in the house of a painter named Peter Hyde, in Greyhound-court, Arundel-street, Strand. In 1739 it was removed to a more commodious house in Peter's-court, St. Martin's-lane, where it continued until 1767, when it was removed to Pall-mall. In 1753 the artists connected with it called a general meeting, for the purpose of establishing an Academy, by a printed circular, which contained the first scheme of a Society of Arts. The effort, however, completely failed. In 1765 the same society obtained a charter as a corporate body, as "The Society of Artists of Great Britain. Some disputes having arisen, the society was near being overthrown by internal factious three years after its establishment. To trace at the present time the real fault or faults of its constitution would be a difficult investigation; perhaps the greatest error of its regulations was the want of a proper limitation of members. As new members were added to the lists, the original founders lost that sway and guidance which they had previously exercised—its first friends, patrons, and members, became a small minority. The original secretary, Mr. Newton, was removed from his office. Mr. Kirby was substituted as president in the place of Mr. Hayman. These acts were the result of a special meeting which had been called by seven members on St. Luke's day, and shortly after these changes eight of the original directors resigned their offices, and, with many others, seceded from the society, giving notice of their resignation in a letter which commented severely on the late proceedings of the

members. The letter was signed by Joseph Wilton, Edward Penny, Richard Wilson, Benjamin West, William Chambers, G. M. Moser, Paul Sandby, and F. M. Newton.

This secession has been regarded by some as an intrigue; and in evidence given before the House of Commons, the credit of it was given to Sir Joshua Reynolds, although it is very clear that he had no hand in the matter. The case is plainly this:—"Certain artists seceded from a society which was not agreeable to them, and they were men of sufficient influence to establish a society, under a name and in a form which was exactly in accordance with their desires,—namely, the Royal Academy, and they accomplished this without the knowledge of those from whom they separated." One point, however, in their new regulations, was open to the charge of personal animosity,—they excluded all engravers from the privileges of the institution. Benjamin West warmly opposed this motion, but his endeavours were to no purpose, and the measure was carried against him. The total exclusion of engravers shut out some of the most prominent men in the society from which the new academy had seceded.

The four persons who first planned the institution were Sir William Chambers, Mr. Benjamin West, Mr. Cotes, and Mr. Moser. These made out a list of their officers, as well as of those who were to compose the body, containing about thirty names, among which that of Reynolds was inserted. Reynolds was not at first disposed to unite with them, and Northcote tells us that West spent more than two hours with Reynolds endeavouring to persuade him to join them: he at last consented, was taken to their meeting, and immediately on entering the room, they with one voice hailed him as their president.

Application had been made to the king for his patronage, and the king, in reply, had declared his intention of giving his countenance to the incorporated society, and of visiting their annual exhibition. After a fortnight's delay, during which Reynolds consulted his friends Burke and Johnson, he consented to accept office. The plans for the society were laid before the king, and signed on the 10th of December, 1768; and thus was founded "the Royal Academy of Arts in London, for the purpose of cultivating and improving the arts of painting, sculpture, and architecture."

The old society was greatly exasperated at the success of the seceders. They solicited the king's permission to establish an academy, which was granted them; George III. even visited their exhibition in Spring Gardens, and presented them with £100. This was the last visit he ever paid them.

The Royal Academy consists of forty academicians, painters, sculptors, and architects; twenty associates; six associate engravers; a treasurer, a librarian, a keeper, and a secretary; there are professors of painting, sculpture, architecture, perspective, and anatomy. The professorships of ancient literature and ancient history are merely honorary. Dr. Goldsmith was the first professor of ancient history. The exhibition of the academy is arranged by what is called the "Hanging Committee," from the pictures selected by the council out of all the works sent to the academy for the purpose of exhibition. The annual exhibition contains about 1,300 subjects, and yields about £5,000 per annum.

The Royal Hibernian Academy of Dublin was founded in 1823; an academy was established in Edinburgh in 1826, which became the Royal Scottish Academy in 1838.

Every year presents us with fresh collections of works of art, not only in the rooms of the Royal Academy, but in most of our leading towns throughout the United Kingdom; and here in London the Society of British Artists, the British Institution, the Societies of Painters in Water Colours, present us with the positive evidence of the advancement of our country in art. The efforts made for imparting art-instruction to the masses, the schools of design, and similar institutions, have aroused much dormant talent, and in our common household goods, as well as in higher developments, we see the rapid progress that art has made.

WENCESLAUS HOLLAR.

Wenceslaus Hollar was born at Prague in 1607. He was of noble family, and from his boyhood was passionately fond of drawing. His father, thinking the pursuit derogatory to his rank, did all in his power to divert his attention from it; but inclination was stronger than parental remonstrance, and in 1627 Hollar quitted his native place. Shortly afterwards the troubles in Bohemia, caused by the Thirty Years' War, completely ruined his family, and left him without any resource but his own labour; and he now had reason to rejoice that he had not listened to the dictates of ancestral pride. He proceeded to Frankfort, where he perfected himself in aqua-fortis engraving, acting under the instructions of Matthew Merian, who has left a great number of landscape sketches and topographical charts. From that time Hollar was immersed in difficulty and embarrassment, wandering from place to place, often without the means of subsistence, until he had the good fortune to meet with the Earl of Arundel, and a great patron of literature and the fine arts. His lordship took him under his protection, and brought him to England, where he recommended him to the notice of Charles I.

The Earl of Arundel had a rich collection of statues, paintings, and valuable ornaments of various kinds. Hollar drew and engraved a great number of these, and his prospects soon began to brighten.

In 1638, Mary de Medicis arrived in England to visit her daughter Henrietta Maria, the Queen of Charles I. A particular account of her journey and entry into the country was published in French, in 1639, with several portraits of the royal family etched by Hollar. In the same year was published the portrait of his patron, the Earl of Arundel, on horseback. In the following year appeared a beautiful set of twenty-eight plates, entitled "Ornatus Mulicbris Anglicanus," representing the different habiliments of Englishwomen of all ranks in full-length figures; and in 1642, 1643, and 1644, were published other sets of women in the dresses of the different nations of Europe.

But he was not long destined to rest in tranquil enjoyment of his new position. The civil war broke out, and Hollar, with a great number of other royalists, was taken prisoner; and, as the roundheads had but little liking for those who ministered to the vanities of the "men of Belial," he had great difficulty in escaping with his life. He at length succeeded in reaching Antwerp, where he rejoined his old protector, who, like himself, was a fugitive, and had not succeeded in saving any of his property save a few pictures and some jewellery. Hollar set to work to engrave them, but his labours were soon interrupted by the departure of his patron for Padua, where he died in 1646. He now found himself in great distress, and the book and printsellers for whom he laboured, taking advantage of the necessities of his position, scarcely gave him enough remuneration to procure for him the means of subsistence.

Upon the restoration of Charles II. he once more returned to England, but he found the times sadly changed. The new king treated him like all other able men of the day, and the unfortunate engraver, finding the London publishers no more liberal than those of Antwerp, was often reduced to the lowest straits. He nevertheless continued his labours, and Peter Strutt, amongst others, gave him thirty shillings for drawing and engraving a view of Greenwich in two large plates. He was, about this time, sent to Africa in the capacity of his majesty's designer, to make drawings of the town of Tangier, with the fort and the adjacent country. On his return he received only one hundred pounds for his labour and expenses. In 1672 he travelled to the north, and made his designs of Lincoln, Southwell, Newark, and York Minster. Like Adam Elzheimer, he was never paid for his works in proportion to the time he bestowed upon them, and continued to drag on his existence in the lowest depths of misery, till death put an end to his sufferings, in London, in 1677. His engravings were then sought after with so much eagerness, that, in many instances, more was paid for a single proof than the artist had originally received for drawing and engraving the plate. In his last illness the bailiffs entered his apartment, to seize the only piece of furniture that was left to him, the bed on which he lay. He entreated their forbearance

only for a short time, as he should then have no further need of it; and earnestly entreated that he might not be removed to any other prison than his grave. It is not known whether this petty mercy was granted him.

Hollar has left his portrait, drawn and engraved by himself. Underneath is written "Wenceslas Hollar, aetatis 40, 1647." It is extremely well executed, and is enclosed in an oval border, which displays great taste in design. The expression of the face is vigorous, but sad, and is apparently that of a man who could support adversity with firmness and resignation.

No man has ever made better use of aqua fortis than Hollar. He seems to have known exactly what it was capable of accomplishing. His points were wonderfully light and fine. He has copied the works of various masters widely different in style, and all with equal success,—Paul Veronese, Holbein, Albert Durer, and Rubens, and has in each case strictly preserved the traits of

with arabesques, medallions, and other fanciful sketches, are rendered with great correctness and elegance of finish.

During his residence with Lord Arundel, Hollar engraved many of the portraits painted by Holbein; amongst others, those of Anna Boleyn, wife of Henry VIII., and of Edward VI. when a boy, and many members of the Arundel family. In this department Hollar has displayed no less talent than in engravings of jewellery. There is a small aqua-fortis engraving by him of a portrait of Holbein, painted by himself, of surpassing beauty and finish. It has a light and luminous appearance, which may fairly bid colouring defiance. He has also engraved a number of female figures, personifying the seasons of the year, which display great skill in the production of effect, and so much mellowness and firmness, that they might almost be placed on a level with oil paintings.

Amongst others of his works, are copies of animals, after Albert Durer, Lucas Cranach, &c.; a series of drawings on death,



WENCESLAUS HOLLAR, FROM AN ENGRAVING BY HIMSELF.

individuality which appear in the originals. He excelled in landscapes, and animals and their covering, fur, plumage, &c. His numerous portraits are very highly valued, but he was not equally successful in his great historical works. The drawing of his figures wants correctness, and the extremities want fineness and delicacy.

Hollar particularly distinguished himself in engravings of ornaments and goldsmith's work. His *chef d'œuvre* in this department is, without doubt, *the Chalice*, a proof of which is preserved in the *Cabinet des Etampes* at Paris. The cup was made by Andrea Mantenio, in 1640, and the delicate etching of Hollar has faithfully reproduced the elegance and chasteness of the model. It displays a lightness and correctness of touch beyond all praise. He has also engraved a great number of scabbards and knife-handles, after drawings by Holbein. All these objects, covered

by Diefembach; costumes of the women of different countries and a few larger pieces after Holbein, Salviati, Paul Veronese and Vandyck. He has also drawn a great number of studies in muffs, which are not the least amusing of his works. These muffs, variously arranged, and from which hands without arms issue in various postures, form a most ludicrous sight.

Hollar merits far more praise than has ever, in reality, been bestowed upon him. After the death of John Sebold Beham, the pupil of Albert Durer, in 1550, the art of engraving made but little progress in Germany; it seemed rather, on the contrary, to have steadily retrograded for some time. The *petits maîtres*, who succeeded Beham, succeed for some time in keeping it stationary, but after them it steadily declined until Hollar appeared, who gave it a new impulse, and opened the lists to the great artists of the seventeenth century.



THE CHALICE, FROM AN ENGRAVING BY HOLLAR. DRAWN BY MONTALAN.

THE ARTS FOUR THOUSAND YEARS AGO.

The Egyptians considered themselves the oldest nation in the world, except the Phrygians, to whom they were obliged to yield the palm, from an experiment made by one of their kings, which would by no means satisfy the logical spirit of the present age. But the nation which flourished on the banks of the Nile, and left behind them monuments which have been the wonder and admiration of forty generations, were themselves but colonists, not an indigenous stock in the land which they reclaimed from a state of swamp and mire, and made the most fertile in the world. It is supposed, even, that the materials of some of their most ancient and most celebrated structures were taken from the ruins of buildings still more ancient, of whose founders tradition itself has nothing to tell. It is certain, however, that they must have been emigrants from another region, and that the primitive nursery of our race was in Asia.

"We do not know," says Von Humboldt, "either from history or from authentic tradition, any period of time in which the human race has not been divided into social groups. Whether the gregarious condition was original or of subsequent occurrence, we have no historic evidence to show. The separate mythical relations found to exist, independently of one another, in different parts of the earth, appear to refute the first hypothesis, and concur in ascribing the generation of the whole human race to the union of one human pair. The general prevalence of this myth has caused it to be regarded as a traditionary record transmitted from primitive man to his descendants."

But where was the first human pair located? Col. Chesney, in the interesting narrative on his expedition to explore the Euphrates, of which we may give some account hereafter, expresses his belief that "the land of Eden" was central Armenia; and he has accordingly laid it down on the index map. He identifies the Halys and Araxes, whose source is within a short distance of the Euphrates and Tigris, with the Pison and Gihon of Scripture, while he considers the country within the Halys as the land of Havilah, and that which borders on the Araxes as the much-disputed territory of Cush.

There is no doubt that universal history and tradition direct us to some point in the eastern continent as the original home of man. Wherever he has been found in the other continents, all his records and traditions declare—"This is not the native place of my earliest progenitors. They were strangers and sojourners here, having migrated from the land of their fathers." Guyot, in his lectures "On the Earth and Man," maintains that western Asia is the original country of the white race, the most perfect in body and mind. Following the footprints of the primitive nations, step by step backward, to their point of departure, we are brought by every route to the centre of this plateau. It is here, also, in upper Armenia and Persia, that we find the finest type of the historical nations, among whom civilisation and the arts flourished earliest. "First, the Zena nation dwells along the Araxes; then, by the road of the plateau, proceeds to found in the plains of the Oxus, one of the most remarkable and the most mysterious of the primitive communities of Asia. A branch of the same people, or a kindred people,—the intimate connexion of their language confirms it,—descends into India, and there puts forth the brilliant and flourishing civilisation of the Brahmins. Arabia and the south of Africa receive their inhabitants by Loristan; south Europe perhaps by the same route, through Asia Minor; the North, finally, through the Caucasus, whence issue, in succession, the Celts, the Germans, and many other tribes, who hold in reserve their native vigour for the future destinies of the continent."

Tradition everywhere represents the race as descending from the high table-lands of Asia, and then spreading east, west, south, and north, and settling in the low, fertile plains, where history first finds them united in societies or nations, tilling the soil, building cities, cultivating the arts, and arriving rapidly at a degree of magnificent and splendid civilisation, of which the temples, palaces, sculptures, and monuments of Egypt, India, and Nineveh afford still living witnesses.

The picture of Egypt, drawn by Herodotus, is very interesting; but it is an imperfect outline compared with what is exhibited by its own exquisitely sculptured monuments, which reveal the arts and sciences in a state of astonishing perfection for that age of the world, and prove the existence of mechanical powers which modern science cannot equal. Man has been described by an ancient Greek writer as "an imitative animal." The Egyptians were peculiarly so. There is not a trade, occupation or amusement, which distinguished their country, not a natural production, whose likeness they have not transmitted to posterity, engraved upon the face of the everlasting rock with a distinctness of outline and a delicacy of execution which demonstrate their skill as artists. They show us the agriculturists in the field, the artificer in his shop, the cooks in the kitchen, the nobles at their banquets, the priests in the temple, the soldiers in their camp, the sportsmen with their gear—hunting and fishing,—the social parties at draughts and other games, and the children at their play, amusing themselves with their dolls and toys.

In reference to their stupendous monuments, also, they give us some information; indeed these, to a certain extent, preserve on their faces their own written and pictorial history. We see the men quarrying the huge masses of rock, out of which they shaped their monster idols; we see that the stones were drawn by bullocks, on a sledge, down an inclined plane to the Nile, a certain liquid being poured on to make the road smooth. But how did they get the colossal figures on the sledges, and down the river, and then up to the sites which they now occupy? If we look at the magnitude of some of these transported fragments of rock, we shall be convinced that there is a mechanical secret still buried under the pyramids of Egypt, fully as marvellous as any connected with the steam-engine. For example, the obelisks, conveyed from Syene to Thebes, are from 70 to 90 feet in length; and the one at Karnac weighs about 297 tons. A statue at the Ramessium weighs upwards of 887 tons, and must have been brought 138 miles! Herodotus mentions a Monolith temple—one composed of a single stone—at Buto, in the Delta, which was brought from the Elephantine—and it was reckoned from its dimensions to be 5,000 tons in weight. By what mechanical power, or by what sort of machinery was this mass conveyed from place to place?

The efflorescence of civilisation depicted on the existing Egyptian monuments 3,500 years ago, is truly wonderful. The children of the Egyptians were then taught writing, arithmetic and geometry. They had a numerous and splendid hierarchy, learned in divinity and astronomy, conducting a gorgeous worship, in temples so vast and grand, that York minster, St. Paul's, and St. Peter's were but parish churches in comparison. At Heliopolis, anciently called On, celebrated as a seat of learning, where Herodotus and Plato resorted for wisdom, stood a magnificent temple of the sun. This vast structure was surrounded with many obelisks, one of which remains still standing amidst the ruins, covered from the base to the top with birds and beasts, sculptured with extraordinary accuracy. Another of these obelisks now stands near the church of St. John Lateran at Rome. It is supposed to be the largest in the world, the shaft being 105 feet in height, and it is also adorned with the finest sculptures. A ship was built to bring it to Rome, rowed by 300 men.

The Egyptians were ignorant of perspective; but their architects knew well how to produce a grand and awe-inspiring effect by the accessories to their temples and palaces. Long avenues of obelisks and colossal statues led to the stupendous temple, which was enclosed by vast circles of a similar kind; within the enclosure was a large court, solemnly shaded with great old trees, and then the priests ascended many a flight of massive stairs to the sanctuary of the god.

How magnificent must have been the conceptions of the Egyptian architects! And the kings—how great their longing for immortality—how far down the vista of future ages reached their views—how tremendous the despotic power they wielded to accomplish their sublime purposes! Think of one of their pyramids, 460 feet high, more than 3,000 feet in circumference, with space for 5,000 or 6,000 churches, and occupying 100,000 men for twenty years in the erection! What modern king undertakes such a task as this for any purposes however useful? If those old Egyptians had known the power of steam, and had the art of constructing railroads, what wonders might they not have

accomplished for the good of mankind, instead of devoting their gigantic resources to glorify a gloomy and stupid idolatry, and in the foolish attempt to immortalise their own mummies! Nowhere do we behold a more affecting illustration of the mingled greatness and meanness of the human mind, of sublime genius and degrading superstition, the loftiest and most cultivated intellect lavishing its divinest resources on the worship of beasts and reptiles!

From the remnants of the ancient Egyptian civilisation preserved in the monuments, we learn how far the mother-nations of the earth had advanced in the cultivation of the arts of civilised life, and how immense the distance between their social condition and the savage state. In this respect Egypt represents many contemporary nations; we learn from Scripture that Nineveh was a great city; and Herodotus tells us that it was the capital of the dominant power in Asia before the rise of Babylon. This great city, "the glory of the Chaldeans," which derived its religion and its arts from Egypt, was for centuries the admiration of the world; and for its extent, the magnitude of its public buildings, the strength of its fortifications, its wealth, magnificence, and luxury has never been surpassed. Numberless other cities sprung up throughout Asia, the most celebrated of which was Palmyra,—truly a city of palaces, as if created by enchantment in the desert, surrounded by an oasis of marvellous fertility, and attracting to its crowded streets the commerce of the east. But in the course of ages their riches and the effeminacy generated by luxury and vice, tempted the approach of the barbarous conqueror and ruthless spoiler, who converted their grandeur and beauty into a mass of ruin.

But civilisation did not perish. Nor could the destroyer obliterate all the vestiges of glory. The artists of Egypt have their reward. Their works have lived to instruct and astonish the 19th century of the Christian era. The papyrus, indeed, betrayed its trust, and the embalmed mummy has little to reveal; but the stones, more durable than brass or iron, have faithfully kept the records committed to them by that wonderfully hopeful generation which built the pyramids, and temples, and tombs, which render the valley of the Nile such a land of mystery. Never were stones so full of sermons, and the perusal of them may well abate the self-sufficiency and self-glorification of modern society.

They tell us of a well-ordered society, under an august monarchy and learned priesthood, with life and property protected by laws justly administered, and enforced by a standing army; of trade and commerce flourishing; of business systematically pursued, with its well-regulated markets, and its deeds and contracts carefully prepared; of well-built towns, paved streets, country houses and villas, with their gardens and pleasure-grounds; of a nobility and gentry living in splendour, and enjoying every luxury of the toilette and the table, using cosmetics which have preserved their rich perfume in bottles to our own time, and viands which might satisfy a modern alderman,—going to their parties in chariots or palanquins, or on foot with parasols and umbrellas, clothed in fine linen and other costly raiment, drinking wine from goblets of gold, glass, bronze, and porcelain, entertained by bands of music, consisting of the harp, the lyre, guitar, tambourine, double and single pipe, flute, and other instruments, while military ardour was roused by the trumpet and the drum. Cabinet-makers and upholsterers were in demand. They had tables, chairs, sofas, ottomans, stools of all sizes, and bedsteads. Exquisite vases and dishes were made by the potters, and those composed of gold and silver and brass were elegantly shaped, and carved with admirable taste. Not to speak of porcelain, alabaster, stone, ivory, even the earthenware for the common people was adorned with figures of flowers, animals, and men,—the latter, no doubt, representing their Wellingtons, Peels, Russells, and Cobdens. The glass-blowers formed bottles of all shapes and sizes. They had beer for the working classes, as well as wine for the rich. Their cooking was as elaborate as Soyer's, and perhaps as good; but unfortunately they lacked knives and forks, and eat with their fingers, aided occasionally by spoons.

There were perfect imitations of the precious stones exhibited last year at the Crystal Palace, but not more perfect than those made by the Egyptians more than 4,000 years ago. From them the Israelites learned the art of engraving precious stones. They largely exported vessels of glass and porcelain, and they manufactured linen as fine as muslin. They had the art of dyeing to perfection, and by chemical preparations they brought out various colours on their cloth by dipping it in liquid of one colour. They were skilful in manufacturing the precious metals—drawing gold out into the finest wire, and beating it into the thinnest leaf. There are not more accurate assayists in her Majesty's Mint, nor eyes more skilful to detect alloy. With the arts of navigation they were familiar, having barges for merchandise, and yachts for pleasure, and galleys fitted for a broadside with the enemy at sea, the sails being richly painted and ornamented with various devices. They excelled in statuary and portrait-painting, failing only where the knowledge of perspective was required. They had judges learned in the law, but no "Bar." They had doctors paid and held responsible by the state, and the medical profession rose to such eminence, that the healing art of Egypt was celebrated in the surrounding nations.

Such was the state of art 4,000 years ago. What will it be 4,000 years to come?

"There is nothing more certain," says Mr. Hugh Millar, the celebrated geologist, "than that the human species is of comparatively recent origin. All geological science testifies that MAN is but of yesterday." Sir Isaac Newton agreed that almost all the great discoveries and inventions are of comparatively recent origin. "Perhaps the only great discovery or invention that occurs in the fabulous ages of history, is the invention of letters; all the others, such as the mariner's compass, printing, gunpowder, the telescope, the discovery of the New World and Southern Africa, and of the true position and relations of the earth to the solar system, lie within the province of the authentic annalist; which—man being the inquisitive, constructive creature that he is—would not be the case were the species of any long gone antiquity."

Steam, gas, and electricity, are discoveries of our own time, which have done more than all that went before to civilise the world. The electric wire now conveys our messages across the Straits of Dover and the English Channel with inconceivable rapidity. London and Galway are within speaking distance; and the electric cable, which will do more to bind society than all other human ligaments, will probably soon stretch across the Atlantic, animating with one soul the old world and the new. In the midst of these achievements of science, let us not forget what human ingenuity effected in the ages when the world was in its infancy.

What will be the state of the arts four thousand years to come, if the world should last so long, would form a curious subject for speculation. Whether, as many believe, the new elements infused into modern civilisation by Christianity will save it from the fate of its mighty predecessors, is a question which time only can determine. But in discussing it, it is important to remember that at no former period was a knowledge of the arts and sciences so widely diffused as at present; in no other age was the face of the earth so well known, and the resources of nature so extensively drawn upon for the general good of mankind. Our knowledge and appliances may not, for aught we know, in some departments be so great as those of the ancients, but they are open to all, and are used for the good of all. They are not shut up amongst the members of a caste or hierarchy, and are not dependent for their growth and culture upon the existence of a system. Governments rise and fall, great and powerful orders of men fall into contempt and decay, without impeding for a moment the advance of science. The spirit of caste, the cankerworm of antiquity,—and which still exercises its blighting influence in Hindostan,—never found footing in Western Europe; and any fondness for it, which still lingers amongst the denizens of the old world, is unknown amongst the energetic colonists of America and Australia. If, which we think hardly possible, an excess of riches, or luxury, or any other cause, should ever paralyse the efforts of English or Frenchmen, and consign Paris and London to the awful doom of Nineveh or Babylon, the arts, sciences, laws, languages, and civilisation, which have been our glory, will, nevertheless, live amongst the offshoots of our race, as long as the world shall last.

THE LADIES' DEPARTMENT.

COVER FOR A HADROT LAMP.

MATERIALS.—Half-a-dozen skeins of each of seven shades of green wool, and four of scarlet ditto. A fine netting-needle, four knitting-needles, No. 14, and the same of No. 16.

With the darkest green wool cast on 96 stitches on each of three of the coarsest knitting-needles (that is 288 altogether), and close into a round.

1st round: Plain knitting.

2nd: × knit 1, make 1, knit, 6, knit 3 together, knit 6, make 1, × 18 times.

3rd: Plain knitting.

4th: Change to the darkest scarlet, and repeat the second round.

5th: Knit 7, × k. 3 t., k. 13, × 17 times; k. 3 t., k. 6.

6th: × k. 1, m. 1, k. 5, k. 3 t., k. 5 m. 1, × 18 times.

7th: Plain knitting.

8th: Change to the next shade of green, and repeat the 6th round.

9th: K. 6., × k. 3 t., k. 11, × 17 times; k. 3 t., k. 5.

10th: × k. 1, m. 1, k. 4, k. 3 t., k, 4. m. 1, × 18 times.

11th: Plain knitting.

12th: Change to the next shade of scarlet, and repeat the 10th round.

13th: K. 5, × k. 3 t., k. 9, × 17 times; k. 3 t., k. 4.

14th: × k. 1, m. 1, k. 3, k. 3 t., k. 3, m. 1, × 18 times.

15th: Plain knitting.

16th: Change to the next shade of green, and repeat the 14th round.

17th: K. 4, × k. 3 t., k. 7, × 17 times; k. 3 t., k. 3.

18th: × k. 1, m. 1, k. 2, k. 3 t., k. 2, m. 1, × 18 times.

19th: K. 3, × k. 3 t., k. 5, × 17 times; k. 3 t., k. 2.

20th and 21st: Plain knitting, using the finer needles, and decreasing until there are only 96 stitches in the round.

22nd: × k. 1, m. 1, k. 2 t., m. 1, k. 2 t., k. 1, m. 1, k. 2 t., k. 1, slip 1, k. 1, pass the slip stitch over, m. 1, k. 1, × 8 times.

23rd: × k. 1, m. 1, k. 2 t., * twice, k. 7, × 8 times.

24th: Like 22nd.

25th: × slip 1, knit 1, pass the slip stitch over, make 1, slip 1, knit 1, pass the slip stitch over, make 1, knit 8, × 8 times.

26th: × slip 1, knit 4, pass the slip stitch over, make 1, slip 1, knit 1, pass the slip stitch over, make 1, knit 3, make 1, slip two together, knit 1, pass the two slip over, make 1, knit 2, × 8 times.

27th: Like the 25th.

28th: × k. 1, m. 1, k. 2 t., m. 1, k 2 t., k. 1, slip 1, k. 1., pass the slip stitch over, m. 1, k. 1, m. 1, k 2 t., k. 1, × 8 times.

29th: × k. 1, m. 1, k 2 t., m. 1, k. 2 t., k. 7, × 8 times.

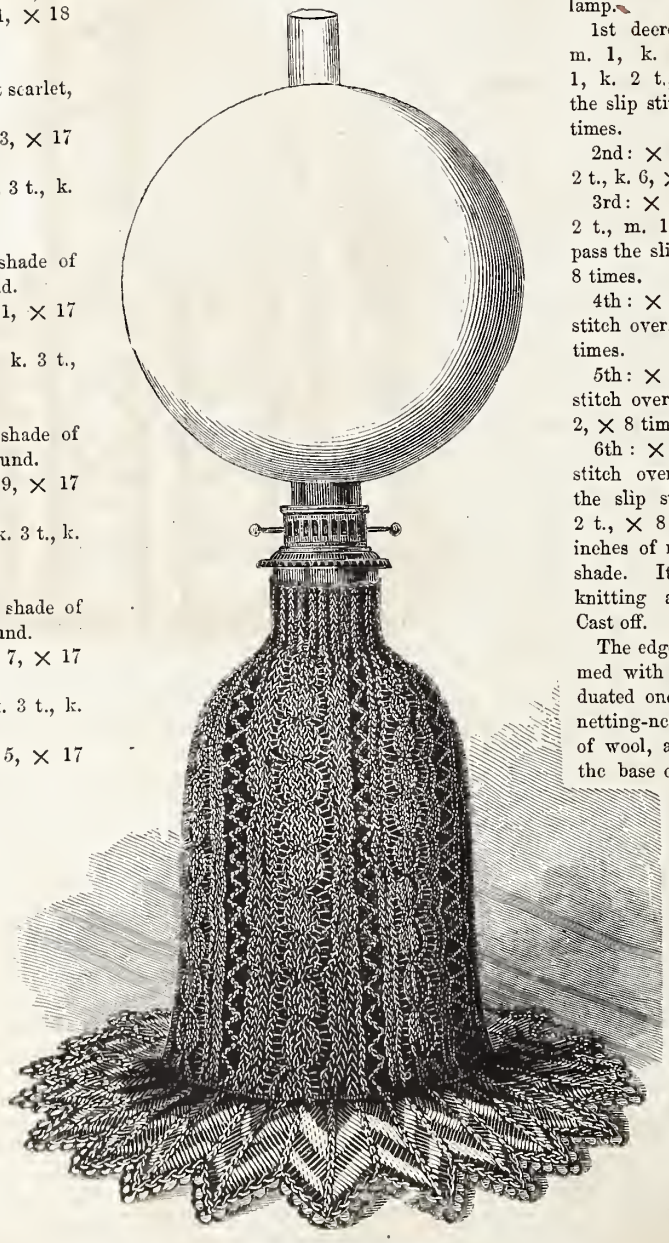
30th: Like 28th.

31st: × * slip 1, knit 1, pass the slip stitch over, m. 1, * twice, k. 8, × 8 times.

32nd: × * slip 1, k. 1, pass the slip stitch over, m. 1, * twice, k. 1, slip 1, k. 1, pass the slip stitch over, m. 1, k. 3, m. 1, k. 2 t. × 8 times.

33rd: Like 31st.

Repeat these 12 rows (that is, from the 22nd to the 33rd, inclusive of both), six times more, doing two patterns (that is 24 rounds) of one shade, and then changing to the next lightest. After the 7th pattern, continue as follows, in order to decrease and form the neck for the lamp.



HADROT LAMP COVER.

1st decreasing round: × k. 1, m. 1, k. 2 t., m. 1, k. 3 t., m. 1, k. 2 t., k. 1, slip 1, k. 1, pass the slip stitch over, m. 1, k. 1, × 8 times.

2nd: × k. 1, m. 1, k. 2 t., m. 1, k. 2 t., k. 6, × 8 times.

3rd: × k. 1, m. 1, k. 2 t., m. 1, k. 2 t., m. 1, k. 2 t., k. 1, slip 1, k. 1, pass the slip stitch over, m. 1, k. 1, × 8 times.

4th: × * slip 1, k. 1, pass the slip stitch over, m. 1, * twice, k. 7, × 8 times.

5th: × * slip 1, k. 1, pass the slip stitch over, m. 1, * 3 times, k. 3 t., k. 2, × 8 times.

6th: × slip 1, k. 1, pass the slip stitch over, m. 1, slip 1, k. 1, pass the slip stitch over, m. 1, k. 4, k 2 t., × 8 times. After this, do two inches of ribbed knitting in the same shade. It is done by alternately knitting and purling two stitches. Cast off.

The edges of the vandykes are trimmed with tatting, of which five graduated ones surround each. Fill the netting-needle with the darkest shade of wool, and make for every point at the base of the corner the following seven loops.

1st: 9 double stitches; draw it up to a half-circle.

2nd: 11 double; the same.

3rd: 13 double; the same.

4th: 15 double; draw it up tightly.

5th: Like third.

6th: Like 2nd.

7th: Like 1st.

This cover is intended to protect the lamp from the dust, which greatly injures the bronzing of the Hadrot lamp.

TRAVELLING-BAG.

MATERIALS.—Three-quarters of a yard of French canvas about five inches wide; thirty yards of straw beading, four skeins of black Berlin wool, four of light scarlet, four of darker ditto, six of light green, six of darker, and twelve of a shade darker still. For making up the bag, half a yard of green silk, to match any one of the shades of wool, a piece of stout cardboard, ribbon for strings, and either narrow ribbon or straw trimming to conceal the joining of the canvas and silk.

Sew over the ends of the canvas, and, holding the end of

the straw over two threads, cover it completely with black wool, taking the stitches across the straw. At the end of the row, turn the straw round, and work down the next line of two threads in cross-stitch, with the darkest green wool, thus:—× 2 stitches, miss 1, 1 stitch, miss 1, 2 stitches, miss 1, × 4 times, 2 stitches, miss 1, 1 stitch. End the row with a single stitch across the braid, like the black ones.

Observe that, when a stitch is missed, two threads, with one space between them, are left, the straw appearing in all the missing parts.

3rd row: Same shade. Turn the straw round, and work in the opposite direction. 1 stitch across, like the black, × miss 1, 2 stitches, miss 3, 2 stitches, × 4 times, miss 1, 2 stitches, miss 1, take one straight stitch.

4th row: Next shade. Turn. 1 straight stitch, miss 2, × 3 stitches, miss 5, × 4 times. End with two stitches.

5th row: Lightest shade. Turn 1 stitch, miss 3, 1 stitch (which should be over the centre of the five missed in the last row), miss 3, × 4 times, 1 stitch, miss 3. A straight stitch at the end.

6th: Like 4th.

7th: Like 3rd.

8th: Like 2nd.

9th: Like 1st.

10th: With the darkest red × 2 stitches, miss 1, × to the end.

11th: Lighter red. × 2 stitches opposite the missed one and the 2nd of the two; miss 1, × repeat.

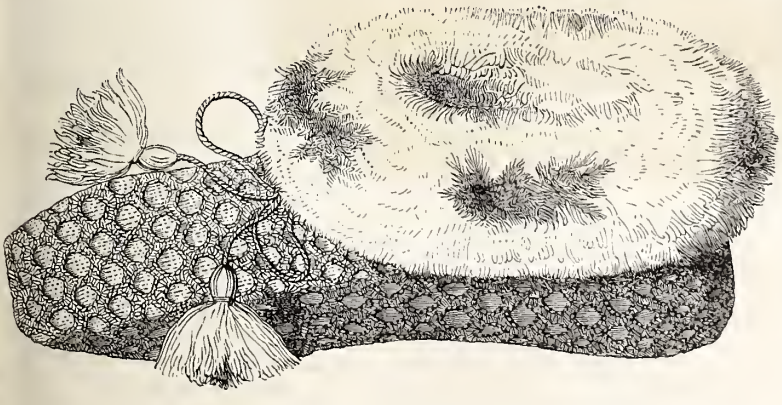
12th: Dark red. Exactly like the 10th. Repeat these twelve rows until the piece of canvas is completely worked, then sew the ends together; cut out an oblong bit of cardboard, pointed at the ends, and cover it with silk; let it be such a size that the canvas will exactly fit it. Sew on the cardboard, and also a piece of the silk, to form the bag at the top of the embroidery. This must have a cord run in, to draw it, and a handle must also be worked on canvas, from the 9th row to the 13th inclusive. This handle is to be lined with silk and stiffened with a wire, which is to be concealed in it. ribbon, about one and a half inches wide, quilled very full indeed, should be sewed, to conceal the joining of the corners and the silk bag.



TRAVELLING-BAG.

INFANT'S SHOE IN KNITTING.

MATERIALS.—1 oz. of white Berlin wool. 1 skein of white, and 1 of pink embroidery wool, 4 knitting needles No. 21, and two No. 19.



INFANT'S SHOE IN KNITTING.

With the fine needles cast 30 stitches on one, and 20 on each of two others. Join into a round, and purl one round.

1st pattern round, × slip 2, taking them off the needle in the same way as if you were going to purl them, but with the wool at the back; knit 3, × repeat all round.

2nd, 3rd, and 4th rounds; the same.

5th and 6th; purl every stitch.

7th to 10th inclusive, × knit 3, slip 2 as before, × repeat all round.

11th and 12th purled.

13th to 16th inclusive, × knit 2, slip 2 as before, knit 1, × repeat all round.

17th and 18th purled.

Repeat these 18 rounds again.

Then do the same twice more; but instead of knitting three stitches, always decrease by knitting two together (once) on the needle that has the thirty stitches in every row which is not plainly purled, until only 12 stitches are left on it.

When 72 rounds are done, the boot will be sufficiently long. Purl two rounds, divide the whole number of stitches on two needles, taking care that the 12 stitches shall be exactly in the centre of one; then join up the toe by casting off, knitting one stitch from each needle together.

Now take up the twenty centre stitches of the 70 originally cast on—that is the twenty middle ones of the thirty that were on one needle, and which were decreased to 12. Knit them backwards and forwards 40 rows. With another needle take up on each edge of this plain knitting 20 more stitches, so that there are 60 altogether.

These stitches must be knitted backwards and forwards thus:—

1st row: × knit 3, slip 2 as before, × repeat with the last stitch, take up one of the 70 next to the 20.

2nd: Slip 2, but as if you were going to knit plain, purl 3. Repeat; join on to the 70 at the other end.

3rd: Like 1st.

4th: Like 2nd.

5th: Purled; join at the end.

6th: Knitted; join at the end.

7th: × k. 2, slip 2; k. 1, × join at the end.

8th: × p. 1, slip 2, k. 2, × join as before.

9th: Like 7th. 10th: Like 8th.

11th: Purled. 12th: Knitted.

13th: × k. 1, slip 2, k. 2, × join at the end.

14th: × purl 2, slip 2, k. 1, × join.

15th: Like 13th.

16th: Like 14th.

17th: Purled, with join at the end.

18th: Knitted. The same.

Repeat these 18 rows.

Take up the remaining stitches of the 70, and form the whole into a round for the ankle.

Purl four rounds.

5th round: × k. 3, m. 1, k. 2, t. × all round. Purl 6 more rounds, and cast off.

For the tassels, plait some wool into a cord, and fasten at each end a tassel of white and pink wool combed out.

For the Ruche.—Cast on five stitches with the coarser needles, and the white embroidery wool. Knit and purl the rows alternately, winding the wool six times round two fingers of the left hand at every stitch, and taking up those threads with the stitches. Do about ten rows so; then for ten more wind the wool only for the first and last stitches, and the pink for the others of each row. Do enough to go twice round the top of each boot. Cut the loops, and comb out the wool. Sew it round the top of the boot.

THE ELECTRIC CLOCK.

The following sketch of the electric clock has been sent us by a gentleman signing himself "H. C. Simpson, Professor of Astronomy," and without pledging ourselves to the accuracy of his details, we present it to our readers as in our opinion a very lucid explanation of one of the not least wonderful operations of that mysterious agent—Electricity:—

The subject is especially interesting at this time, when a bungling scheme for the establishment of "uniform sidereal time throughout the country" is going the round of the press, and which is open to so many objections, that I fear to intrude either upon your time or patience by enumerating half of them. Therefore, without further preface or apology, I shall at once proceed to state what in my humble opinion is the only practicable means of creating "uniform mean Greenwich time" along our different lines of railway; and for that purpose commence with a description of "the electric clock"—a beautiful example of natural phenomena co-operating with the skill of the mechanic. Perhaps you have seen the clock in the Great Exhibition; and after pondering over its curious arrangements, and carefully examining its extraordinary movements, you wish to preserve a little remembrancer of it—just enough to refresh your memory when an opportunity offers for talking about it to others. Here is the best I can supply without the aid of diagrams. The clock is enclosed in a case about four feet and a half in height, by one foot four inches wide. The dial (or face) is of ample dimensions, very simple in appearance, and furnished with second, minute, and hour hands, exactly similar to those of ordinary construction. The pendulum is the same length as that of the common old-fashioned eight-day clock; but here the analogy altogether ceases. There are some wheels and pinions to move the hands, and give the usual indications of the divisions and progress of time. These are few in number, and do their work in a manner totally different from the machinery in other kinds of clocks. The electric clock has neither weight, spring, nor power of any other kind within itself to keep it in motion, and therefore never requires winding up! The terms used to indicate important parts of common clocks are inapplicable to this. For example, the "escapement of a clock" implies some contrivance to get rid of the superfluous motive power; that is, to expend its force in such equal quantities, and at such exactly equal intervals, that the motion of the hands and the time registered shall be uniform so long as the motive power is maintained; as the going or sustaining power of the electric clock is entirely independent of the machinery, there is no necessity for an escapement. Where, then, does the clock derive the power that keeps it continuously in motion? "That is the question" I will now try to answer. Two very fine copper wires are fixed in the angles of the clock-case, which communicate with similar wires at the back of the pendulum bar or rod, and are thence continued to a coil *(helix)* of the same kind of wire surrounding an armature of soft iron, and the whole of which is enclosed in a circular brass box. This box constitutes what is usually called the "bob" or "plumb" of the pendulum; but whilst it answers that purpose, it performs another and most important duty as an *electro-magnet*. The box is hollow in the direction of its axis, and the cavity thus formed admits of the insertion of two sets of *permanent* magnets, whose *similar* poles are placed near to, but *not* in actual contact with, each other. These magnets are kept in their places by being enclosed in brass boxes secured to the sides of the clock-case. The pendulum is so adjusted that it has perfect freedom of motion; in its oscillations passing and repassing the poles of the magnets just mentioned.

Leaving the clock for a few moments, we observe two copper wires, the ends of which are in contact with those within the case, continuing their course along the wall; these wires pass out of doors, descend below the surface of the earth, and at a short distance from the house are connected, one with a few bushels of coke, and the other with five or six plates of zinc. These materials are buried in a hole in the earth, about four feet square by five feet deep. The coke is placed at the bottom, with a layer of earth above it, and the zinc plates are laid thereon; the whole being covered up, and forming a galvanic battery! From this battery is obtained the power or force which imparts motion to the clock. A current of electricity is induced by the coke and zinc, which, although of *very feeble* intensity, is *unlimited* as to quantity. The pendulum being set in motion, and the current of electricity through the wires established, a beautiful arrangement of simple mechanism immediately comes into operation, by means of which the circuit is broken and renewed at each alternate oscillation. This is effected by a thin bar of steel, the points of which, shaped like lancets, work upon agate bearings. The current of electricity is transmitted through the bar, which is set in motion by the pendulum, every time one of the points passes over the conducting wire. The combined agencies of galvano-electricity, electro-magnetism, and permanent magnetism, are thus made to produce a uniform and, so to speak, a perpetual motion of the pendulum, which will continue as long as the materials will resist the process of natural decay; and we thus obtain a time-measurer of such extraordinary accuracy, that I believe it will bear comparison with the best constructed chronometers. Let it be understood that the electric clock has nothing within itself to put or keep the hands in motion. The power comes from the battery in the earth, is communicated to the pendulum and by the pendulum to the wheels. These are small in size and few in number, and have nothing to do but turn upon their bearings. There is no pulling, pushing, or straining of any kind, and therefore the least possible amount of friction or wear. I know of one of these clocks that has been going since March, 1847. Its rate has been uniform, and its fidelity as a time-measurer is one of its most remarkable properties. The battery has *never been touched* or looked at since it was made. Its power or "rate" in no way affected by the changes or fluctuations of the atmosphere, whether of heat or cold, dryness or moisture! If it is desired to have other clocks in different parts of the country (or even in the same building), that which I am describing only requires to be connected with them by a copper wire, and the circuit completed to the battery, when—if one clock was mounted at Land's-end in Cornwall, a second in Edinburgh, a third in Calcutta, and a fourth one in London—they would all be kept going by the motion of one pendulum! and all record exactly the same time! Such is the Electric Clock invented by Alexander Bain of Edinburgh, a gentleman deservedly known in the scientific world as the *father* of the Electric Telegraph.

THE LOTUS *(Nelumbium speciosum)*.

Of all the plants with which European horticulture has been enriched during the last few years, none is more remarkable than the *Nelumbium*, or Lotus, not only from its own size and beauty, but from the celebrity of the traditions which are connected with it. The *Nelumbium speciosum* is originally from India. Until the seventeenth century it was considered peculiar to Lower Egypt, though we believe no one had ever met with it there. In ancient times, it was called the *Egyptian Bean*, or *Lily of the Nile;* and the roots and seed were used as fruit.

It is to Clusius that we owe the first accurate details ever published concerning this celebrated plant. He was the first to ascribe to the different nymphaceæ of the Nile those properties and appearances which Theophrastus and Herodotus predicated of the Nelumbium alone, which they described with great minuteness. Since the time of Clusius, who lived at the period of the Renaissance, the researches of travellers, historical testimony, and extended study of the various religions of India and Egypt, have all tended to confirm the accuracy of his observations. The lotus bears the name of *Nelumbo*, in the island of Ceylon; and *Nelumbium* was given it by Jussieu, and under the latter it is now known in the scientific world.

It is held sacred in many parts of India and China and Japan. The Buddhist priests consider it the emblem of the world issuing from the waters, and they cultivate it in costly vases for the purpose of adorning their temples and altars. At the present day representations of it may be found on almost all the paintings which are brought to this country from the east. It formerly flourished in Egypt, but must long ago have disappeared, together with the ancient religious system which was, in all probality, the means of introducing it. The *savants* attached to Napoleon's expedition searched for it in vain along the lakes and canals, where in the time of Herodotus it flourished in abundance. It may be seen on the medals of the Ptolemies, and its stalks grouped in bundles decorate the granite pedestals, on which rest the colossal Egyptian figures in the Louvre at Paris. Its flowers and young fruit crown the statue of the ancient Antinous, and are sculptured on the base of the statue of the Nile at Rome.

The Nelumbium of ancient Egypt grew in the lakes and canals so thickly that they could be traversed on foot. Strabo tells us that he amused himself by walking on lakes covered with beans, and that the people were in the habit of shading themselves under the leaves of the lotus, as they do now under those of the date-tree and the reeds. And he adds, that these leaves were as large as "Thessalian hats," and were commonly used as plates or goblets, and were sold for this purpose in the shops.

The following lines from Southey's "Curse of Kehama" admirably describe a lake covered in this way.

> "Fed by perpetual springs, a small lagoon,
> Pellucid, deep, and still, in silence joined,
> And swell'd the passing stream. Like burnish'd steel
> Glowing, it lay beneath the eye of noon;
> And when the breezes, in their play,
> Ruffled the darkening surface, then with gleam
> Of sudden light around the lotus stem
> It rippled, and the sacred flowers that crown
> The lakelet with their roseate beauty, ride
> In gentlest waving rock'd from side to side;
> And as the wind upheaves
> Their broad and buoyant weight, the glossy leaves
> Flap on the twinkling waters up and down."

The seeds of this plant continued for a long time to be known amongst the Romans, but it has gradually disappeared, as we have already said, from the waters of the Nile, and nothing of it remains but the memory preserved by medals and hieroglyphics.

The Nelumbium is a perennial aquatic plant, the roots of which are very like long creeping stems, white and jointed like the reeds of our own marshes (*arundo phragmites*). They are brittle, fistulous, and protected at the joints by a tuft of fibrous roots, and a bud or germ from which the leaf springs.

The flowers correspond almost exactly with the description given by Heredotus. We cannot do better than compare them to enormous tulips, and the resemblance is more striking when they are budding only. When fully opened they measure about one foot and a half in diameter. They are supported upon pedunclcs of more than three feet in height, covered, as are also the petioles by prickly thorns, like those of the other nymphaceæ (*Victoria Euryale*). The petals are imbricate, and of a full rose colour at the extremity, and generally number from twelve to fifteen. The numerous stamens appear in two rows, and present a white filiment of linear antbers, terminated by a claviform prolongation of the connective. The flowers open two days after one another, and close up every night. The odour resembles that of the rose. In this country the lotus, when cultivated, is placed in boxes filled with a mixture of turfy earth or sand covered with water, but without any animal mould, the presence of which, as many doubtless are aware, corrupts the water, and generates gases which prove fatal to aquatic plants. These boxes are placed under a glass case exposed to the action of the sun's rays, but kept constantly closed, and under which the temperature is often raised to 72°. The roots soon begin, under these conditions, to send forth leaves, which float on the surface of the water. These leaves contain a great quantity of lactic juice or sap.

The singular structure of the fruit has attracted the attention of many botanists. It consists of an obconic receptacle, carneous, of a glaucous green colour, in which are hidden from fifteen to thirty pistils. It has been compared, and not unaptly, to the bulbous grating at the end of the spout of a watering-pot. These pistils, terminated by a sessile stigma, change afterwards into small blackish nuts, which the ancients called *beans*. Theophrastus, in particular, has left a most accurate description of it.

"This bean," says he, "grows in marshes and swamps. Its stem is four cubits in length, and as thick as a man's finger. It resembles a reed which has no knots. It bears its fruit in the form of a wasp's nest, and contains about thirty beans, each one placed in a separate compartment. The flower is twice or three times as large as that of the poppy. The fruit rises above the water, and the leaves are supported by a stem resembling that of the fruit. They are large, and resemble a Thessalian hat. Upon breaking the bean, a small body may be seen folded upon itself, from which the leaf springs; the root is thicker than that of a strong reed, and has dissepiments like the stem. It is used as food by those who live near the marshes. This plant grows spontaneously and in abundance. It is often sown also upon the slime or mud, and a bed of straw made for it, so that it may not rot."

Herodotus has compared the flower of the Nelumbium to that of the lily, and in fact calls it the "lily of the Nile." Pliny likens it to the poppy. Athenæus calls it by the name of *lotus*, which is, however, applied to a great variety of plants.

Herodotus states, that the Egyptians cultivated the Nile lotus (which he does not confound with the Nelumbium), and that its seed, like that of the poppy, was used to make bread. He adds also, that they eat the roots of the lotus, which were round, about the size of an apple, and of sweet savour.

At the present day, if the waters of the Nile, no longer contain the Nelumbium, they contain at least two edible *nymphaceæ*. These two plants, called by the Arabs, Nénufar (*Nymphæa Lotus*, or *Arais el Nil*, Rose of the Nile), and Bachenim (*N. cærulea*) are used as food. The Fellahs give the name *biaro* to the round root of *N. cærulea*, and make with its small farinaceous seed, *doeh el Bachenim*, a kind of bread, something like that of the inhabitants of Upper Egypt. We may then without difficulty believe that the fruits which compose, with the ears of corn, the symbols of the attributes of Isis belong to the nymphaceæ (*N. Lotus*, or *cærulea*), and not to the poppy, which they did not cultivate in Egypt. This combination of corn and the lotus would then be emblematic of plenty and fertility, since the Egyptians used the two plants in making their bread.

"The lotus," says Herodotus, "grows in the plains when they are inundated. The flowers are white, and have petals like those of the lilies. They close up at night, and hide their fruit, and open out again in the morning, and rise above the surface of the water. The fruit is equal in size to that of a large poppy,

and contains a great number of grains like millet grains. The Egyptians put them together in a heap until the rind decays; they then separate the grains by washing the whole in the Nile, and then dry them and knead them into bread. The root of the lotus is round, and about the size of a quince apple, and the skin is black, something like that of a chestnut. It is white inside, and is eaten both raw and boiled."

It is in consequence of having confounded under one name three different nymphaceæ, and another alimentary marsh-plant (the *colocasus*), that so many mistakes have been made about the lotus.

It is perfectly understood nowadays, that in the time of Theophrastus the Egyptians ate the roots and seed of the nelumbium, or lily of the Nile, as in our days do the poor people living on the borders of the lake of Cashmere, and also that they lived upon the small seeds and round roots of the *Nymphæa Lotus*, and *cærulea*, like the Fellahs in the neighbourhood of Damietta.

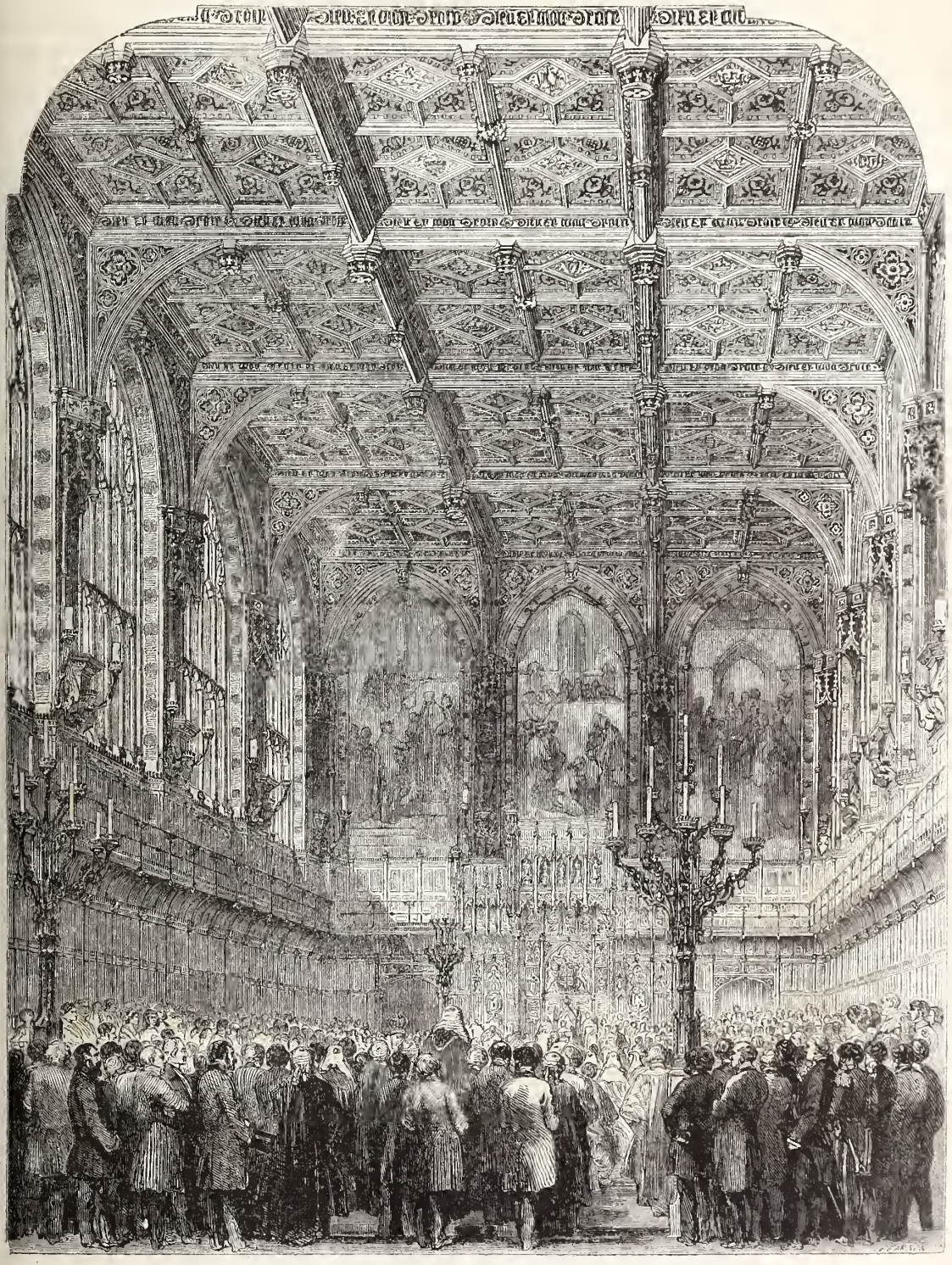
The Nelumbium presents the same phases of vegetation as the other Nymphaceæ. The leaves fall off in autumn, and during the winter not a trace of it remains. The roots remain at the bottom of the water, or in a vase, and all that is necessary for their preservation is to protect them from frost.

The *Nelumbium speciosum*, like all other cultivated plants, has produced a great number of varieties, some with white flowers, others with double flowers, upon peduncles sometimes smooth and sometimes prickly. It grows spontaneously in the lakes of India, and at the mouth of the Volga, in the Caspian Sea, not fa from Astrachan, where the thermometer is sometimes so low a 7 deg. Fahrenheit in winter, but where the average temperatur in summer is 53 deg. There is no plant in the world whic possesses so much interest in an historical point of view as th lotus. The emblem of sanctity amongst the priests of an extinc religion, four thousand years ago, it is now no longer known i the countries where once it was held sacred, and has sought refug in the gardens and conservatories of the far-off lands of the wes of which the votaries of Isis never dreamt.



THE LOTUS (*Nelumbium speciosum*).

THE HOUSE OF LORDS.



INTERIOR OF THE HOUSE OF LORDS; THE QUEEN PROROGUING PARLIAMENT.

There was for a long time a notion prevalent amongst the masses of the people in England, that the conquest of England by the Normans was nothing but a change of dynasty, that William ascended the throne in place of Harold, and there the affair ended. This error has been spread and confirmed by the old historians, and by our school-books, which religiously follow the lines of kings, and allude but distantly, if at all, to the unknown millions who toil and fight, and suffer and die unchronicled, and unchanted. But, in truth, the Norman conquest, as detailed by later and more faithful hands, was a mighty revolution, not in a political aspect only, but in a social one. It was not merely the overthrow of the Saxon line, but the inauguration of a gigantic system of spoliation and oppression. Truer notions on the subject are now beginning to prevail, and to none are we more indebted for their diffusion than to a foreign historian, Augustin Thierry. Blind, and prematurely old, through excessive appli-

cation, physical suffering has never been able to shake his devotion to science. He has entered into our history with an ardour which few of our own countrymen have ever displayed, and he has shown no less accuracy in his conclusions than patience in research.

His theory has now been adopted by all who are competent to form an opinion on the subject. He has shown us with a brilliancy of colouring, and picturesqueness of execution which few historians have ever equalled, that the Norman army did not become colonists or settlers after the battle of Hastings, but still continued an army of occupation, living in the midst of a population whom they treated as conquered and hostile. The country they used as an encampment, and the inhabitants as slaves to cultivate it, in order to supply the commissariat of their masters. Though scattered over the kingdom this army was not dissolved. The military grades and organisation were still preserved, ready for action at a moment's notice. William, in assuming the title of king, did not cease to be commander-in-chief of the foreign army. His descendants continued for many centuries to occupy the same position. The king was still general, the lieutenants took the names of barons, the subalterns that of *knights* (*milites*), and *esquires*. The kingdom was parcelled out amongst these adventurers in strict accordance with their distinctions of rank. The leader took possession of a certain position himself, and assumed the right of disposing of all the rest, according to certain laws of discipline. This privilege is asserted in the title he assumed, that of *King of England*. His subordinates, following his example, took the name of their respective portions or domains, just as men now do when they are elevated to the peerage. In process of time the descendants of the conqueror called to witness God and their right (*Dieu et mon droit*), that the kingdom was their inheritance by right of conquest. The descendants of the lieutenants in the same way, held the titles assumed by their ancestors with the permission of the chief, as their right. The Saxons were counted as nothing. They were the vanquished, were called *subjecti*, or subjects, and their business was to nourish the army encamped amongst them. Of them we shall speak at some future period.

When the chief wished to take advice upon the affairs of the invading army, he summoned a council of his superior officers, the *barons*. The knights and esquires were not of sufficiently high rank to sit in it, so that in process of time they became, in some measure, identified with the *subjects*—in short, fell into the rank which they now occupy, that of *commoners*.

Before taking possession of their new abodes in the various parts of the country, the Norman knights took an oath to be their leader's men of faith and service; and what they swore to the chief, those under them, in like manner, swore to them.

"The man," says Thierry, "who had passed the sea with the quilted cassock, and black wooden bow of the foot-soldier, now appeared to the astonished eyes of the new recruits who had come after him, mounted on a warhorse, and wearing the military baldric. He who had arrived as a poor knight, soon lifted his banner, and commanded a company, whose rallying-cry was his own name. The herdsmen of Normandy and the weavers of Flanders, with a little courage and good fortune, soon became in England men of consequence, illustrious barons; and their names, ignoble and obscure on one side of the straits, became noble and glorious on the other."

"Would you know," says an old roll in the French language, "what are the names of the great men who came over the sea with the conqueror William *à la grande vigeur*. Here are their surnames as we find them written, but without their christian names being prefixed, for they are often changed, and are often wanting: they are Maundeville and Daundeville, Omfreville and Domfreville, Bouteville and Estouteville, Mohun and Bohun, Bisset and Basset, Malin and Malvoisin."

Several lists of this kind have come down to the present day, arranged so as to impress themselves on the memory by means of the rhyme and alliteration, and inscribed on large sheets of vellum. Several authentic acts designate as Norman knights in England one *Guillaume le charretier* (William the carter), *Hugues le tailleur* (Hugh the tailor), *Guillaume le tambour* (William the drummer). Others were known simply by the names of the towns from which they came, as Rochefort, La Rochelle, Chalons, &c., now corrupted into Roehford, Rokely, and Chaloner. Other names really French have been changed in the same way, De la Haye into *Hay;* De la Souche into *Zouch;* Du Saut de Chevreau into *Sacheverell*, &c. Such were the men who brought into England the titles of *nobleman* and *gentleman*, two words of purely Norman origin, and which had no equivalent in Saxon.

The subjects, as we have already said, lived for the benefit of their conquerors. They were obliged to provide subsistence for the chief and his suite whenever he made "a progress" through the kingdom; and so rigorously was this privilege asserted, that on hearing of his approach the peasants retired hastily into the woods and other remote places, carrying with them as much of their property as they could save. His domestics when travelling claimed the same rights as himself. But these proceedings were always obnoxious to his lieutenants, the barons. They were themselves in the habit of making exactions from the serfs, and they felt well assured that the more the king took, the less would there be for them to take. The officers were therefore interested in moderating the exactions of the general, while he on his part was obliged to watch over the welfare of the whole army, and take care that no one individual devoured too much in the province committed to his charge, lest by this means the country should become exhausted, and famine enter the camp. Thus there resulted a struggle between the general and his subordinates, —or in other words, between the king and the lords, and the consequences of this struggle were in the highest degree favourable to the people, whom neither party had the remotest idea of benefitting. The lords combined for their own defence, and obliged the king to sign an act which restrained his power of impressing their villains for the repair of roads, bridges, and fortresses, limited the quantity of grain and cattle which the royal purveyors might levy in their journeys, and interdicted the seizure of beasts of burden, of wagons, and agricultural implements. This compact forced upon the general by his officers, is known in history as the Magna Charta.

The king then in retaliation compelled the barons to limit their exactions from the peasantry to regular taxes, to allow to merchants free liberty of travelling from place to place, favoured the growth of towns, granted them charters, and gave men safe-conducts, not so much from compassion, as because every subject who was impeded in his labour, or who perished in it, to satisfy the wants of one person, was a loss to the entire community of conquerors. But the Magna Charta, and all the statutes succeeding it, do not speak of the people in any other light than as beasts of burden, valuable for their services only.

"At certain epochs, either fixed or determined by the captain," says Thierry, "there was a general meeting or review of the whole army. Every officer and soldier attended it; the chaplain were present at it. This assembly was called a *parliament*, which means conference; because explanations were made there, and counsel taken on the movements to be made both in and out of the country, on the distribution of posts, the means of maintaining themselves in peace in the midst of their subjects, and of obtaining the greatest quantity of provisions and money." All the barons were forced to attend parliament, but the order was not so strictly enforced with regard to knights and soldiers, as the journey was too expensive. Their officers answered for them. This caused the meeting to be generally a meeting of the state. This was the origin of the House of Lords; how the House of Commons came to be added to it, we shall explain on a future occasion.

To enter into a history of the House of Lords would in our limited space be impossible. Being mostly composed of men of large property, and in the decline of life, it has of course always been averse to rapid changes of any sort, and has too often been found supporting the arbitrary acts of the crown. It was overwhelmed by the roundheads in 1640, fell with its master, and was resuscitated at the restoration. The wisdom which its members have displayed on most occasions of late, in making timely concessions of the popular demands, has done much to secure for them the good opinion of the masses of the people.

The "speaker" of the House of Lords is the Lord Chancellor who occupies a large soft seat like an ottoman, called the wool

sack; but the peers, when speaking, do not as in the Commons, address themselves to him, but to the whole house. The English peers sit by hereditary right; the Irish and Scotch peers are elected by the members of their own order for life only. As each of the lords appears for himself, he has the power of delegating his right of voting, or as it is called his "proxy." The debates in the House of Lords have acquired more interest of late in the eyes of the public from the fact that at present it contains the premier and foreign secretary, a circumstance which has not taken place since the Melbourne administration was in office.

It has never been famous for its oratory. Its members, in most cases, do not enter it until in the decline of life, when gouty, querulous, and often deaf. Nor do they attend regularly, —a dozen peers often dividing upon measures of the utmost importance; and this small band of hereditary legislators is anything but disposed to encourage flights of oratory. Any sparks of enthusiasm which may survive the frigidly formal education which the aristocracy receive, are quenched for ever by age and disease ere the peer takes his seat in the upper house; and if any adventurous or eccentric individual attempts to work upon the feelings of his auditors by bursts of impassioned rhetoric, the cold smile or well-bred stare of surprise warn him that his *modus operandi* is neither suited to the place nor the men. He is obliged to leave them to be guided by the prejudices of their order, and to vote in accordance with claims of private friendship or political partisanship.

The striking difference between the House of Lords and the House of Commons, in this respect, has been well exemplified in the case of several eminent orators of modern times. Perhaps the most remarkable was that of the celebrated Lord Chatham, the Demosthenes of English oratory. But one or two of his speeches have come down to us, and these in a very imperfect shape. Even thus, they serve to give us some idea of his gigantic powers as a debater; but we are enabled to form a clearer estimate of them from the testimony of his contemporaries. From them we learn, that for force, brilliancy, sublimity, keen sarcasm, and brilliant flashes of wit, his speeches were unrivalled, and that they were set off by an elocution which Garrick never equalled. His eagle face, commanding stature, "an eye that spoke audience ere the tongue," and graceful and animated gestures, roused the enthusiasm of his supporters to the highest pitch, and carried terror into the ranks of his opponents. But like all great orators, whether of ancient or modern times, the applause of a crowded and excited audience were as necessary to sustain his fiery declamation as the labours of the humble bellows-blower to the practised organist. Eloquence never flourishes but in the midst of the conflict and uproar of divided interests.

When, in an evil hour both for his fame and happiness, he entered the House of Lords, he soon found that his occupation was gone for ever. His sounding periods, and brilliant outbursts, and tones, and gestures worthy of a Talma, were thrown away upon the few gouty old men who nightly lounged upon the benches, and looked upon all emotion and enthusiasm as vulgar in the extreme. From that time he sank rapidly.

In latter days this gaudy chamber has received into its precincts two men of very different character, but both practised orators, trained in the stormy debates of the Commons, and neither of a spirit sufficiently tame to succumb to the antiquated manners and customs of the quiet region in which they now find themselves. We need hardly say that these are "the Rupert of politics," Lord Derby, and "the noble lord who knows everything," or according to his own correction,—"everything proper to be known,"—Lord Brougham. Their animated harangues have done much to infuse life into the dull proceedings of the peers. The eccentricities of the latter in particular have supplied abundant food for merriment, not only to his auditors, but to the public also, who, however, in return for his past valuable services, are quite disposed to overlook his foibles. But these men have one paramount advantage, which Chatham and Bolingbroke did not possess. The listlessness or indifference of their audience matters little to them, for everything they say is faithfully reported, and read by thousands in every part of the kingdom within a few hours of its delivery. Even now, however, when a question involving the fate of a ministry, or any event of similar importance is under discussion, the House of Lords presents a very gay and animated appearance. Gaily dressed ladies crowd the galleries in company with the sons, brothers, and other friends of the peers, eagerly watching the struggle. On the first night of the appearance of the Derby ministry, a scene of this kind occurred, on which occasion, we are informed by a venerable female writing in *Blackwood's Magazine*, the entrance of the Earl of Derby, dressed in a black paletot, with a hat of the usual shape, with a piece of crape wrapped around to signify, we presume, the death of one of his relatives, impressed the beholders with a feeling not unallied to awe.

Admission cannot be obtained to the House of Lords during the debates except by a peer's order, but except on rare and important occasions we believe there are few who seek it. In appeal cases, when the house becomes a court of justice, however, the public has free entry, in accordance with the well-known repugnance of the English law to tribunals sitting in secret. The peers have been judges in some of the most stirring cases which have ever come before an English tribunal.

But it is at the opening or prorogation of Parliament, when Her Majesty performs that office in person, that the House of Lords should be seen, to form a just conception of the passing splendour of this magnificent apartment. The peers in their robes, the generals in their uniform, the judges in their ermine, and the bishops in their lawn, the foreign ambassadors in their varied national or official costumes thronging the benches, the wives and daughters of the English aristocracy, confessedly the finest women in the world, attired in all the hues of the rainbow, filling the galleries, the queen in royal robes, and wearing the crown of the mightiest empire of the earth, occupying a throne—"safebuilt on bosoms true," and accompanied by the children that girdle her with beauty, the commons crowding to the bar in tumultuous loyalty, with their speaker at their head, the wisest, the wittiest, the bravest, and the handsomest of a great nation congregated in a gorgeous saloon, to witness a ceremony which lasts but a few minutes—all form a *coup d'œil* of surpassing splendour. He who has seen it once need never hope to look upon its like again.

Her Majesty enters by the Victoria Tower, one of the most magnificent works of the kind ever erected. It is 75 feet square, and will rise to the immense height of 340 feet, or 64 feet less than the cross of St. Paul's. The entrance arch is 65 feet in height, and is covered with a beautifully-worked groined stone vault. The interior is decorated with statues of the patron saints of England, Ireland, and Scotland, and a statue of her Majesty the Queen, supported on either side by figures emblematic of justice and mercy.

This entrance leads to the *Norman Porch*, so called from the frescoes illustrative of the Norman history of this country, with which it is intended to decorate it. On the right is the Robing Room—a spacious apartment, fitted up with great magnificence—in which the Queen puts on the Crown and robes of state. She then passes through a magnificent apartment, 110 feet in length, 45 in width, and 45 feet high, called the *Royal Gallery*, decorated with frescoes illustrative of English history, and the ceiling richly gilded and covered with heraldic devices. After passing through the Prince's Chamber, she enters the House of Peers—the most magnificent apartment perhaps in the world. It is adorned with large frescoes—three at each end,—viz., over the throne, the Baptism of Ethelbert; Edward III. conferring the Order of the Garter on the Black Prince; and Henry Prince of Wales committed to Prison for assaulting Judge Gascoigne; the Spirit of Religion in the centre compartment over the Strangers' Gallery, the Spirit of Chivalry, and the Spirit of Law. The twelve windows are stained glass. Between the windows are niches for statues of the eighteen barons who wrung the Magna Charta from King John. A beautiful gallery of brass work runs underneath the windows, and on the cornice beneath it are the arms of the sovereigns and chancellors of England since Edward III. The golden throne, which the Queen occupies at the opening and proroguing of parliament, is at the upper end of the chamber.

Our engraving represents the Queen in the act of proroguing Parliament, with the Commons standing in masses in the foreground.

EGYPTIAN MOSQUES.

The Turks and Arabs, like all other races, have lavished all the resources of their art upon the decoration of their places of worship. But in their case the difficulties have been greater, as the employment of painting or sculpture is wholly interdicted to them. They have consequently been obliged to tax their ingenuity for the invention of new styles of ornament, and the result has been the arabesque which we described in our last volume.

The peculiar form of architecture displayed in their public buildings is familiar to most of our readers, from the numerous engravings of oriental subjects which have from time to time appeared in this country. But the interior of these sacred edifices is, we venture to say, by no means so much so; and we therefore present them with two engravings taken from Mosques in Cairo, each of them possessing considerable interest.

The first represents the interior court of the mosque Kesmas-el-Baradeyeh. It is situated in the street Derb-el-Ahmar, the continuation of which opens on the square of the citadel. A large corridor, sustained by arcades in the Moorish style, runs round the courtyard in the interior, and here the Mohammedans slowly and gravely promenade, immersed in pious meditations. A great number of doors opening from this corridor communicate with the interior of the great hall of the mosque, under the dome.

In the midst of the courtyard is a sort of pavilion, supported by short columns, covering a fountain, the fresh and pure water of which is used for the ablutions of the faithful, who resort there in great numbers to pray at least once a day, and oftener during the summer. The fountain is also overshadowed by a large sycamore, which is now more than a hundred years old. This, itself, would be quite a curiosity in this country, but in Egy trees of this age are by no means uncommon. They are nev cut down until every part is completely withered,—above all whe they grow in consecrated ground. They are still more reverenc because the pigeons and storks build their nests in the branches.

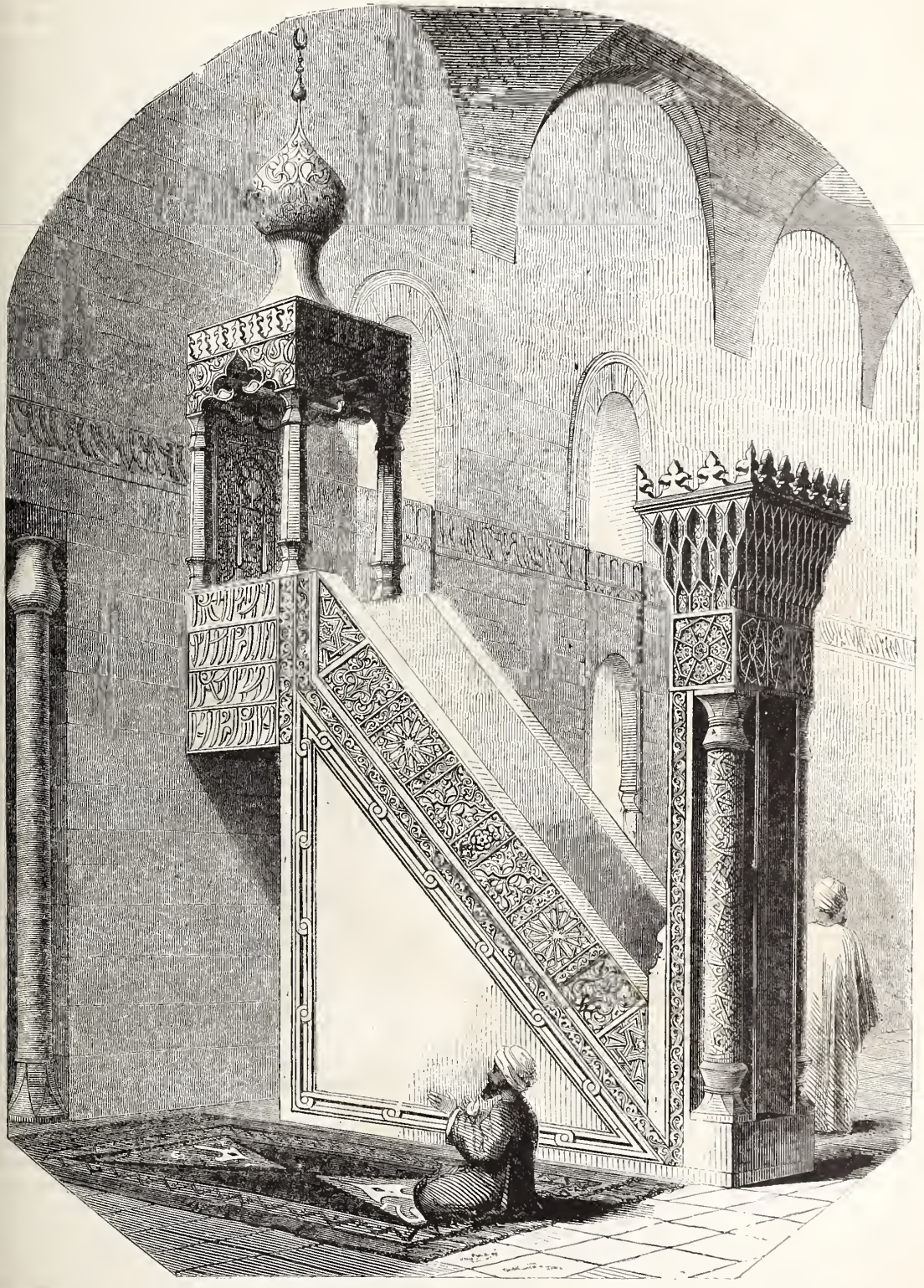


COURTYARD OF THE MOSQUE KESMAS-EL-BARADEYEH.

Our second engraving represents a pulpit in the mosque Barkauk, at Cairo also. It is built in coursework, ealeareo stone, alternating with white and red. It is flanked by tw

square edifices, surmounted by domes, and used as tombs. One of these is the tomb of Calif Barkauk, who founded the mosque in the year 527 of the Hegira (1149); the other is that of his family. Not far from this are other tombs, constructed and decorated in the best style of Arab architecture. The entire building comprehends summer and winter apartments for strangers, and three complete suites for sheikhs and other dignitaries.

The decoration of the interior is beautiful. The pointed arches are supported by square pillars with two bends, and in stone of two different colours. Between the arches are small covings in brick. A great number of lamps are suspended from the crossbeams which hold the different arches together.



PULPIT IN THE MOSQUE OF BARKAUK.

The *nimber*, or pulpit, which is placed as usual, near the *mehrab* or niche which marks the direction in which Mecca lies,

displays great beauty in execution. The framework of the door, the staircase and pulpit, properly so called, are white marble. The columns at the entrance are cut in one block; the sculptures, in which are combined all possible varieties of oriental decoration, flowers, twines, are in low relief upon a coloured or golden ground. Four different colours contrast agreeably with one another and the white marble,—namely, gold, red, blue, and green. Thus, the crescent, and the lower part of the turban, and capitals and bases of the pillars are green; the shafts of the columns are red; and the sculptures on the interior of the dais are golden on a red ground. The pendents over the door are gold on a blue ground.

Two minarets of graceful proportions, and with three tiers of galleries, rise over the front of the building.

Although in an excellent state of preservation, this mosque has now for a long time been abandoned for want of funds for keeping it in repair. A single porter is now its sole guardian, and he is supported by the contributions of pilgrims and travellers.

ANCIENT CIVILISATION OF THE NEGRO RACE.

In his own estimation, the white man is the model man, the standard of humanity, the realisation of the ideal of the Creator; and all departures from this type are so many proofs of degeneracy. The black man takes quite an opposite view of the question. He believes that white is the colour of degeneracy and ugliness. How shall this question be settled? By instinct? If so, we are assured that the negro nations in Africa, where they are free and independent, have quite as strong an antipathy to the whites as we have to the blacks, and that their chiefs would look upon our loveliest ladies with contempt. If the appeal be made to universal suffrage, we greatly fear that the white race would be in the minority; and that if a universal standard of beauty for the human race were thus established, the pale-faced nations of the north would have no chance. The negro philosophers might argue from the prevalence of the dark colour, and the repugnance felt to the white by the majority of our race in those regions, too, whence emanated the learning, religion, and civilisation of Europe, that there is a divinely-implanted instinct in their favour. They might point to the fact that in Abyssinia the children are terrified at the sight of a European; and that the people of that country express their horror of fair complexions by painting the devil white, just as Christians that shiver near the north pole represent hell as a place without a spark of fire.

If we come to philosophy and history, we shall find that the Negro has much to say for himself, although both the philosophy and the history be written by his white antagonist. The theory of the "Vestiges of the Natural History of Creation"—that the races of animals run into one another, gradually developing higher types, from the reptile to the monkey, from the monkey to the negro, and from the negro to the white man—has been fully refuted, and proved to be supremely absurd. But it is no new theory. The philosophers of this school are ridiculed in "Hudibras," where we read,—

> "For some philosophers of late here
> Write, men have four legs by nature,
> And that, 'tis custom makes them go,
> Erroneously, upon but two."

Dr. Mason Goode admits that "the negro, like the white man, is still God's image, though carved in ebony." But there are unquestionable historical facts which go to prove that if the negro were not the primitive type of man, our first parents had a large mixture of the blood, colour, and features of that race, who are undoubtedly the most eminent inheritors of civilisation mentioned in the records of the world. Mr. Hugh Millar, author of some of our best works on geology, says in the *Christian Witness*,—"Did such of our Edinburgh readers as visited the Exhibition, mark with what scholarlike exactness and artistic beauty the late Sir William Allan restored, in his last great picture ('The Cup Found in Benjamin's Sack'), the original Egyptian form, as exhibited in the messenger of Joseph? Had the first men, *Adam* and *Noah*, been of that mingled Negroid and Caucasian type—*and who shall say* they were not?—neither the Goth nor the Negro would be so extreme a variety of the species as to be beyond the power of natural causes to produce."

The colour of man deepens as we advance from the colder to the warmer climates. The light complexion of the northern nations gives place to the swarthy tinge of the Spaniards, Italians, and Greeks; and when we pass the Mediterranean into Africa, the dark colour which is proper to all the warmer regions of the globe everywhere meets the eye. The Jews, naturally as fair as the other inhabitants of Syria, become on the plains of the Ganges as dark as the Hindoos. The Portuguese naturalised in Africa, become entirely black. The native of China, of a dull yellow tint at Pekin, is at Canton nearly as dark as a Lascar. The American Indian retains his distinctive copper hue amid the snows of Labrador, but on the shores of the Caribbean sea becomes nearly as black as the Africans. The Laplanders in the arctic regions have preserved the colour and features indicative of their Asiatic descent; and the negroes reduced to bondage in a distant land, retain from age to age all the distinctive marks of the African family; and they alone, of all the southern races, are able to sustain the burning heat of the tropical regions without having the frame wasted and the constitution debilitated.

We now arrive at the fact that the parts of the earth which were first peopled and cultivated, where cities were first built, kingdoms established, laws enacted, arts cultivated, and where the most stupendous temples, gorgeous palaces, and durable monuments were erected, were possessed by coloured men, among whom the negro race were pre-eminent, for civilisation, power, learning, and religion. There are no monuments in the world so impressive as the vast ruins of an extinct civilisation, which must have flourished for centuries before the historic period, as they had at that time utterly perished. The *Ethnological Journal* says truly,—"It was not by barbarians that the pyramids, temples, and other vast works of Africa were erected; and yet the more searching our inquiry is into their origin, the more distant does this appear to be. The cave temples of India are the remnants of a civilisation whose memory has wholly perished; while neither the traditions nor history of Italy or Greece enable us even to conjecture who were the nations that erected their Cyclopean buildings." Even in the New World, the kingdoms destroyed by the Spaniards were founded on the ruins of far mightier empires, whose shattered works buried under the roots of enormous forest-trees, speak of a civilisation and a power, rivalling in greatness and in antiquity those of Egypt itself.

"Religious institutions and languages are equally unequivocal in showing the wonderful extent of this ancient civilisation. In India, Japan, and even in the Polynesian Islands, we find at the present time, and reaching back into the remotest past, systems of sacerdotal power quite similar to those of ancient Egypt, and supported by doctrines and mythologies fundamentally the same. In Peru, especially, the Spaniards put an end to a race of pontiff-kings, the very counterparts of the first sovereigns of Egypt. The most barbarous tribes reveal these monuments of a mysterious past—among the northern Fins and Laplanders, in New Zealand and the islands of the Pacific, and in the wilds of North America. But what is most remarkable, the farther we go back into antiquity in any of the great centres of civilisation, the more vast do we find the vestiges of human power, the more capacious and lofty seem to have been the faculties of the mind, the more stupendous their architecture, the purer their religion, the more elevated their views. The material monuments of this pristine state are not the only evidence: universal tradition, from the earliest times, speaks mournfully of a descent from a more glorious state, from an era of demigods. Hesiod, the earliest Greek poet, believed that he lived in an iron age, which had been preceded by three other great eras,—the age of brass, the age of silver, and the age of gold. It is to this golden age, the remotest of all, that the ancients invariably looked for the origin of their sublime knowledge. It is ascertained that the style of buildings, drawing, and sculpture is most perfect in the oldest monuments, and less so in those that are later. Mr. Pickering, on the Race of Man, shows that the early architecture, caves, and paintings of India, with nothing borrowed from Greece or Egypt, exhibit a surprisingly high state of civilisation, surpassing the conception of the present day. So in Egypt, the earliest monuments indi-

cate high civilisation, manifesting that idolatry and polytheism were not found till the Pharaonic age. Whately, Harris, Smith, and other writers abundantly illustrate this fact, and demonstrate that "man primeval" must have been divinely taught, for in proportion as our race wanders from God it degenerates; and there is no instance of a nation or tribe rising from barbarism to civilisation without foreign aid.

Let us now see what the negro had to do with this ancient civilisation, which excites the wonder of modern times. He appears in history not many centuries after the flood. His deep, unchangeable black hue was a proverb in the time of Jeremiah—"Can the Ethiopian change his skin," &c. According to various authors, say the writers of the Universal History, "the proper ancient Ethiopians were, for the most part, perfectly black;" though there were some tribes called by Pliny white Ethiopians. In Egypt, and wherever the children of Ham prevailed, black was the colour in which the painter exhibited his heroes and demigods, and the negro features were those which the artist loved to trace with his chisel on the immortalising marbles and on the face of the everlasting rock. This proves that the negro was then a ruling race. In many parts of the East, particularly in Japan, there are stupendous and magnificent temples, in which the idols are represented as negroes, with woolly hair, though the present inhabitants of those regions are straight-haired, and black is the colour which the Japanese think best befits their ideal of the greatest and the best of men.

Osiris, one of the principal gods of Egypt, is frequently represented black, and Bubastis, the Greek Diana, one of the great Egyptian Triad, may be now seen in the British Museum, sculptured in black basalt. Among the Hindoos, Kali, the consort of Siva, Crishna and Vishnu, are represented of a black colour. The great Sphinx at Gizeh, and many other ancient works of Egyptian art, had prominent jaws, thick lips, a broad flattened nose, and projecting eyes. The Buddhists of Asia, comprising three hundred millions, or a third of the human race, represent their principal deity, Buddha, *with negro features and hair*. In the plains of India are Nagpoor, and a ruined city, without name, at the gates of Benares, perhaps the Kasi of tradition, which were once adorned with statues of a woolly-haired race. The Hindu gods figured in the celebrated cavern in the isle of Elephanta (whose sculptures display the oldest form of the Indian religion, that of the Smartal Brahmins, in which the attributes of the three persons of the Triad are represented in one figure),—these most ancient gods of Asia have *African* features, with which Dr. T. B. Hamilton was particularly struck when he visited the cave.

The people whose form and features were then esteemed most godlike, were undoubtedly, says Dr. Thomas Smith, "the Indo-Cuthites, the descendants of Ham, the aboriginal type of the black races of men, and of the Ethiopians, whose migrations extended from the rising to the setting sun." Sir William Jones says,—"The pyramids of Egypt, the colossal statues described by Pausanias and others, the Sphinx, and the Hermes Canis, which last bears a strong resemblance to the Varaha Avatar, indicate the style of the same indefatigable workmen who formed the vast excavations of Canarah, the various temples and images of Buddha, and the idols which are continually dug up at Gaya, or in its vicinity. These and other indubitable facts may induce no ill-grounded opinion, that Ethiopia and Hindostan were peopled or colonised by the same extraordinary race; in confirmation of which it may be added, that the mountaineers of Bengal and Behar can hardly be distinguished in some of their features, particularly in their lips and noses, from the modern Abyssinians."

Eminent writers have expressed their conviction that the *aborigines* of Asia, as far north as the lower ranges of the Himalaya mountains, were of the negro type. It is by this supposition that Sir Stamford Raffles accounts for the oriental habits, ideas, traditions, and words, which can be traced among several of the present *African* tribes, and in the South Sea Islands. Traces of this black race are still found along the Himalaya range from the Indus to Indo-China and the Malay Peninsula, and in an annexed form all through the southern states to Ceylon. The Malays are considered an adulteration of this woolly-haired stock. "It is," says Pritchard, "an established fact that a black and woolly-haired race is among the original inhabitants of Asia, and of countries not far from India." It follows, of course, that the negroes were among the *aborigines of the world*—that they date from the flood,—and it is by no means certain that Noah and his family were not negroes.

The Ethiopians, dwelling at the foot of Mount Caucasus, and famous in the most ancient times for their high civilisation, are described by Herodotus as "black-skinned and woolly-haired." Among other manufactures, they rivalled the Egyptians in the production of linen, and excelled all other people. As Dr. Wiseman has shown, both Aristotle and Herodotus describe the Egyptians as having the black skin, the crooked legs, the distorted feet, and the woolly hair of the negro. Now it was to this very race of men that Homer, Lycurgus, Solon, Pythagoras, and Plato, resorted for wisdom, for instruction in philosophy, law, religion, and arts; and it is from them, that these fathers of Grecian literature and civilisation borrowed the ideas which they embodied in their own institutions, and illustrated by their own more beautiful genius.

It was the boast of Pharaoh's daughter, who became the wife of Solomon, that she was a negress—*very black*. Indeed, Dr. Pritchard, and other writers on the physical history of man, have placed beyond doubt the fact, that the Egyptian national conformation prevailing in the most ancient times was "nearly the negro form with the woolly hair," which in a later age became considerably modified by mixture with other races. In the degraded Copts of the present day, we have the remaining posterity of the once enlightened and civilised Egyptians; and it is believed that they retain the features of their lordly progenitors—dark skin, soft woolly hair, flat heads, short nose, wide mouth, prominent eyes, bandy legs, and large flat toes. This picture is far enough from *our* ideas of manly beauty and commanding presence, while the generally narrow and retiring forehead is perplexingly at variance with the theories of phrenology. Yet such were the Egyptians of old, the people of that land, which was the granary of the east, the school of the west,—the land of horses and chariots, of arts and refinement of luxury and magnificence,—whose monuments are still the wonder of the world! How deeply have they fallen from their former state!

In the time of our Saviour, the coloured races of Africa had powerful states. The African churches were some of the most flourishing planted by the Christian missionaries; and among their woolly-haired and flat-nosed ministers were some of the most eloquent divines. The Rev. Mr. Seymour has brought to light a curious fact in his "Pilgrimage to Rome." He there found a number of "miraculous pictures" of the Virgin; some of these were black, representing her as a *negress*. There were also some images of our Saviour perfectly black, and of a negro cast. These are very ancient, and are supposed to have been brought from Africa by some of the early Christians who fled from persecution. But in some where our Lord is introduced, the Virgin is painted black, and the Son on her knee *white*. A curious example of this may be seen in the Spanish collection of the Louvre.

It would be interesting to show how natural, social, and political causes contributed to the present degraded condition of the negro race, and to inquire into its probable destiny. As long as a great and enlightened people continue to look upon it as the source from which their bondslaves are to be drawn, the subject will not cease to be one of interest. The arguments of slaveholders are nearly all grounded upon the alleged intellectual inferiority of the negro—inferiority produced, say they, neither by want of culture nor social degradation, but by the hand of God, who thus plainly intended to brand him as a slave. The lash of the driver is held in one hand, the other is raised to heaven, to indicate the source from which his authority is derived. We shall not seek to vindicate God's character from flat blasphemy like this; nor shall we take from the wrong-doer our estimate of his victim's capabilities. We do not ask the robber if he whom he has plundered and maltreated was a craven or a knave. We know his answer beforehand. Nor should we form our opinions of men, any more than of plants, from seeing them on a foreign soil and under an unpropitious climate, poor and weak, despised and rejected by those around them. We must seek in history the evidences of their past achievements, and from our experience of the past conjecture what they may become hereafter.

VASES OF THE ALHAMBRA.

GRANADA presents a wonderful combination of all that is most wild and sublime, with whatever is soft and beautiful in natural scenery. Sometimes called Upper Andalusia, it was the central seat of Moorish power and magnificence. Even amid the general decline of that authority in Spain, Granada was still supported by the multitudes who resorted thither from the subdued provinces; and its fall, in 1492, was regarded as the most deadly blow ever suffered by Islamism.



PORCELAIN VASE FROM THE ALHAMBRA. DRAWN BY MONTALAN.

In the heart of the Vega, or plain, which is watered by numerous streams descending from the lofty regions, and beneath the highest eminences of the majestic Sierra Nevada, rises the city of Granada. Nothing can exceed the beauty of its approach. The rich and populous country well supplied with trees, the clear rivulets descending from the mountains, and artificially contrived to intersect it in every part; and the splendid city extending itself in a half-moon from the river, on the gradua ascent of a hill, with its streets rising above each other, and profusion of turrets and gilded cupolas, complete a scene to whicl no description can possibly do justice.

But the eye of the intelligent traveller is soon attracte towards the Alhambra, the ancient palace and fortress of th kings of Granada—the noblest existing specimen of Mooris architecture, and with which nothing perhaps in Europe, out c Italy and Greece, can be brought into competition. Its site fine, resembling that of Windsor castle, it being situat on a hill above the river. A huge heap of ugly building however, huddled together without the least apparent inte tion of forming an habitation, the walls only gravel a pebbles daubed over with plaster, is all that is presented the exterior structure. The walls of the fortress follow t

various sinuosities of the cliffs, which bound the plateau on which it stands.

The chief entrance, which is approached by a long avenue of elms and myrtles, in one of the towers of the south front, is called "the Gate of Judgment;" and over it is embossed a key, the armorial ensign of the Andalusian Moors. On crossing the threshold the visitor seems transported into a fairy scene. He passes through a range of apartments: the baths, "the Court of Linis," the "Hall of the Abencerrages," the "Golden Saloon," or "Hall of Ambassadors," the "Gate of the Sanctuary of the Moors, are as brilliant as when they were first laid on, five hundred years ago. Water, in sparkling fountains, or in sheets of glassy smoothness, bordered with the gayest flowers, refreshes the interior of the apartments. The "Hall of Ambassadors" is usually called the pride of the Alhambra; it is a square of thirty-six feet, and is sixty feet high to the top of the cupola, having a ceiling vaulted in a singularly graceful manner, and inlaid with mosaic of mother-of-pearl; its walls, also, being adorned with groups of flowers and fishes, intermingled with arabesques of curious workmanship. In addition to the interior being highly



PORCELAIN VASE FROM THE ALHAMBRA. DRAWN BY MONTALAN.

Koran," with others, in which the various resources of Oriental pomp are displayed, together with all that can refresh the eye or the sense in a sultry climate. The courts are paved with marble, and surrounded with pillars of the same substance, in a pure and beautiful taste; and the walls and pavements are profusely ornamented with gilded arabesque and mosaic, the colours of which, by an art which seems to have been lost with the finished, it has the advantage of extensive views over the city, the dark valley of the Darro, and some other parts of the palace. The splendid work on the Alhambra by Mr. Owen Jones, the decorator of the Crystal Palace, faithfully depicts, in its fifty exquisite engravings, the wonders and the beauties of this most extraordinary edifice.

The two vases, of which we give engravings, long occupied

niches in the Alhambra. They were executed in baked clay, with enamelled colours and gold, similar to the mosaics. The inscriptions borne by the one on the left are those which are found on all parts of the Alhambra, "There is no conqueror but God." The height of this jar is four feet five inches, and its diameter two feet eleven inches. It is said to have been discovered full of gold, in one of the subterranean caverns of the Casa Real. It is at present to be seen, Mr. Owen Jones says, in a small chamber of the "Court of the Fish-pond," in which are deposited the archives of the palace.

The vase represented on the righthand page had inscriptions not so frequently repeated as they were in the former, and they were read with more difficulty. The spirit of them appears to have been, "Nothing is like Him (God)." It was broken a few years ago, and its pieces are said to have been sold to a passing traveller.

POPULAR ERRORS, PREJUDICES, AND SUPERSTITIONS.

CHAPTER I.

THERE is an old proverb which tells us we should "only believe one-half of what we hear." This is all very well in its way, and would perhaps be an excellent maxim to guard us against being led away by every imposture and every fallacy that either knaves, on the one hand, or fools, on the other, might choose to propagate; but unfortunately there is one point of considerable importance omitted in the very sage piece of advice we have quoted. It does not tell us *which* half we should give credit to.

Mankind is credulous. Granted. But mankind is also sceptical; and though prone to credit any bit of absurdity that may be set before us, we are none the less prone to scout and ridicule whatever passes our comprehension. Both these tendencies of the mind are natural to it; they are two extremes, which serve to check each other; and unless the human judgment were infallible, and possessed the faculty of arriving at the truth by intuition, the same caution which prevents our acceptance of a boldly advanced falsehood, must retard our acknowledgment of nature's sublimest truths; while the faith without which no new discovery could ever hope to gain credence (for few of them come out full-grown in all the vigour of incontestable proof), —this same faith, we say, must of necessity sometimes lead the mind towards errors. It is proverbially difficult in any matter to acquire "the happy medium" between opposite extremes. In commercial matters we have heard one man give as advice, "Think every man a rogue until you prove him honest." Another, in our hearing, has reversed the maxim, and advised, "Consider every man as honest until you prove him to be a rogue." Now, substituting for the honesty of man the truth of any theory or statement, which of these two shall we adopt for our rule of faith? Shall we deem everything we hear a truth until we prove it false, or think it false until we prove it true? Shall we reject everything that is new as therefore, of necessity, untrue, as former ages disbelieved the circulation of the blood, the motion of the earth, the possibility of crossing the Atlantic by steam, and scores of other things now known as facts? or shall we, on the other hand, believe in everything, as other generations have put faith in charms, astrology, the *elixir vitæ*, wizards, broom-bestriding witches, and the thousand other matters of faith which did honour to the "wisdom of our ancestors?" Truly it is difficult to decide which of the two is the less evil; still there are in the human mind so many liabilities to error, that mankind may well be very careful how to put faith in anything until it be proved a fact. Ignorance, that darkness of the mind which, like material darkness, prevents our seeing what is true; vanity, which makes us willingly shut our eyes, and say we know already; idleness, preventing us from taking advantage of the light that is offered us to guide us on our way; indifference, education, habit: all these, and many others, may be quoted as amongst the causes which have led to error, prejudice, and superstition.

Perhaps it may not be uninteresting if, in a few short papers, we lay before our readers an account of some of those fallacies which were at one time matters of universal credence; and some also, which are none the less matters of faith amongst a large number even of educated people (strange to say) at the present day.

This latter assertion doubtless calls for some explanation. What, the reader may perhaps exclaim, in this enlightened England, and in this enlightened nineteenth century, do there indeed exist educated people who still believe in any of the superstitious follies of the bygone ages? Yes, reader, there do, indeed. There are believers, not only in those more pardonable errors which arise from a mere want of knowledge, but even in those absurd prejudices and superstitions, the utter fallacy of which the commonest of all common sense must point out at once. To some of these we will first direct attention. Contemptible little superstitions which do not admit of reasoning upon: these we will consider before going into those other matters of more importance which may be rather classed as errors than as superstitions. Amongst these minor follies we have mentioned may principally be included the signification of dreams, the various methods of divination or fortune-telling; and lastly, one that is far more extensively believed in, or at any rate acted upon, than either of the others: we refer to omens, or lucky and unlucky signs; to which may be added the ominous actions a man may commit, and the unlucky times and seasons.

With regard to the latter superstition, the unlucky or lucky times and seasons, we will not go at length into the different days of the year, as set forth in any fortune-telling or dream book—the 16th of such a month being a good day to cut your toe-nails, or the 29th of such another a bad day to fall down stairs and break your leg, or what not. We say we will not go into these matters, for happily dream-books and fortune-telling books are rapidly losing their hold upon the public faith, although thousands are still sold every year to the poorer classes, especially to servant-maids. We will content ourselves with one superstition, in which we know for a fact there is no end of believers. We will simply speak of that dreadfully unlucky day FRIDAY.

Now though it is hard to believe that any sensible man really *thinks* Friday a more unlucky day than the other six, yet we know several otherwise clever well-informed folks who at any rate *act* exactly as if they did think so. They do not like to acknowledge it, even to themselves, and yet in their inmost heart they feel it, and would as soon think of throwing their money into the sea as of embarking it in any speculation, however promising, upon a Friday; would rather sit idle the whole day than begin a work on Friday; rather be bachelors for life than marry on a Friday. It would make a curious inquiry, by-the-by, to ascertain by the registrars' statistics the number of marriages solemnised on Fridays compared with those on other days. We have never looked for ourselves, but have no doubt the difference would be striking. Now what can have thus stamped the sixth day of the week with this ominous character we know not, unless it may have originated in the fact of the crucifixion of our Saviour taking place on that day, and the fastings and humiliations ordained in commemoration of it by the Romish Church. At any rate, if the day be thus ominous, it argues badly for mankind; for we are told by the Scriptures that it was upon this identical day —the sixth day of Creation's week—that man was formed.

A strange anecdote is told of this superstitious dislike to Friday. A shipowner being anxious to break through the ridiculous prejudice, and perhaps also to show his own individual superiority to it, had the first timbers for a new vessel laid down on Friday. The craft was finished, and was launched upon a Friday, and at the same time was named "the Friday." The first part of her cargo was put on board upon a Friday; and after considerable trouble in procuring sailors for the doomed vessel (for sailors are perhaps, as a class, more superstitious than any other), "the Friday" set sail for her first voyage on a Friday. The shipowner was a brave man; but unhappily his protest against an absurd prejudice only injured the cause it was intended to have served for by a most strange coincidence the ship was lost upon a Friday! a fact which doubtless much confirmed all the believers in the unfortunate fatality connected with that day.

In addition to Friday, the Russians have a horror of Monday as being also an unlucky day.

But there are ill-omened actions as well as inauspicious days

For instance, it is most unlucky to walk under a ladder,—a superstition which may perhaps have had its origin in the falling of a hod of bricks or mortar upon the head of some venerable gentleman of the olden time, who was unlucky enough to walk beneath a ladder while some mediæval bricklayer's labourer was ascending it in a state that interfered with the maintenance of his equilibrium. It is "unlucky" to tread upon a beetle—very, we should say, as far as the beetle is concerned. To spill the salt at table is very unlucky, and the evil can only be averted by throwing some of the salt over the left shoulder. If salt be spilled between two persons, it is a sign of their quarrelling. May not this superstition have been derived from the East, where eating salt together was formerly a solemn bond of friendship—rejecting it, or throwing it away, a token of hostility? It is very unlucky to omit eating goose on the festival of St. Michael. Still more unlucky, we should suppose, to have nothing to eat at all on that day. It is unlucky to lay two knives, or a knife and fork, across each other. In fact, there is no end of actions we may commit every hour of our lives, all of which are believed (some of them of course by greater numbers than others) to be sure portents of coming evil.

To enumerate all the different omens of good or ill would require considerably more space than our limits would afford, so numerous are they, more especially the omens of evil, that the believer in them must lead a wretched life. In fact, all nature seems called upon to furnish omens of some kind or other. Beasts, birds, insects—nothing is too commonplace or too insignificant to be construed into some absurd portent of good or evil. A dog howling, or an owl screeching at midnight are said to be signs of death. Sheep even, those most inoffensive of animals, are not without their share in pointing out the destinies of man. If they come to meet you when setting out on a journey you will be prosperous; if they turn their backs, your journey will be useless. If a strange dog follows you and endeavours to be friendly with you, it is a sign of great prosperity. A male cat entering your house is also very lucky—a she-cat coming in like manner portends some great misfortune. A swarm of bees alighting in your garden presages great good fortune. To see a swallow or a stork is lucky; so it is to meet a piebald horse; still better to meet two of them. To see one magpie is unlucky; to see two magpies is very lucky. An old fisherman one day told us that in regard to himself and his brethren of the rod and line, this last-named omen was one on which the most perfect dependance could be placed. And he gave a very good explanation of it. The fly-fishing season is that in which these birds go in pairs. Now on fine warm days, such days as promise abundant sport to the angler, the two birds fly out to seek their food together, whereas in cold weather one of the birds is compelled to keep at home and sit upon the eggs. Now as cold weather is always bad for the angler's sport, to see a single magpie is literally and truly a bad sign. This may have been—we do not say was—the origin of the superstition. Perhaps somewhat similar origins may be found for many of the omens which seem so utterly unmeaning. If a hollow piece of coal of an oblong shape fly out of the fire, it is "a coffin," and a sure sign of death. Differently shaped, it is "a purse," and promises wealth. The tallow of a candle being melted into a certain form becomes "a winding-sheet," and presages death. It is very unlucky to meet a sow or a donkey upon first going out in the morning. If thirteen people sit down to dinner, one of them will die before the year is out. A sudden shivering denotes that some one is walking over the ground destined to be your grave. Itchings of different parts of the body have all their various significations. But surely we have enumerated enough of these absurdities. That many of them, if not all, are still extensively believed in, we know from experience amongst our own acquaintance; and we doubt not many of our readers can testify the same. At the same time the believers in these omens cannot help acknowledging their absurdity, even while they cannot help attending to them. Implanted into the mind in its earliest, tenderest budding, as most of them have been by nurses, grandmothers, or gossips, these miserable superstitions cling to it for life, defying even reason to efface them. In the name then of humanity and common sense, let the mothers of our own time guard well their nurseries. Let them keep the strictest watch over their infant's dawning minds, that no germ of this ridiculous superstition may haply fall upon them and take root there. Thus, if we cannot entirely eradicate the poison from our own generation, at any rate let the next be spared the taint.

Not to mention the belief in ghosts, hobgoblins, and the bodily apparitions of evil spirits, which we would fain look upon as a thing of the past, though we fear it is not altogether so, there is another class of superstition still extensively believed in. We allude to the signification of dreams, and the various kinds of fortune-telling.

Some idea of the extent to which these two absurdities are believed in may be gathered from the following fact. We quote from a note appended to Dr. Charles Mackay's "Extraordinary Delusions." He names two books as having an extraordinary popularity in England. "One is *Mother Bridget's Dream Book and Oracle of Fate*, the other is *The Norwood Gipsy*. It is stated on the authority of one who is curious in these matters, that there is a demand for these works (which are sold at sums varying from a penny to sixpence, chiefly to servant girls and imperfectly educated people all over the country) of upwards of *eleven thousand annually!*"

Eleven thousand copies of these two books, not to mention the other trash of a similar kind, as *Napoleon's Book of Fate*, which has also a very large sale, and others! Shame to the age we live in!

The belief in the signification of dreams dates from the most remote ages; and perhaps there has never been any nation which has not had its expounders of these mysterious operations of the mind. Remarkable instances are frequently adduced of dreams "coming true." These are put forward as proofs of the fact that dreams are at the present time what Scripture tells us they were in some special cases, and in the age when God's government of the world was almost entirely a succession of special miraculous interpositions;—that is, that dreams are really intimations of the future. And yet when we consider the number of these fulfilments of dreams, compared with the number of dreams that do *not* "come true"—when we consider that many people dream almost every night of their lives, and perhaps one in a hundred of these dreamers has a dream "come true" *once in his life*, the wonder is that the coincidences are so rare, even reckoning by the mere rule of chances. When we add to this that dreams are frequently nothing but a continuation of the subject we have been thinking of while waking, is it so wonderful that they should *sometimes* tend towards the result which actually occurs?

FRENCH BUFFET OF THE SEVENTEENTH CENTURY.

The end of the last century was by no means in France a favourable period for monuments of mediæval art. The insane love of nothing that was not on the Greek or Roman model, and the political conflicts by which the country was torn and agitated, caused the loss of many valuable works which would at the present day be in the highest degree interesting both to the artist and the historian.

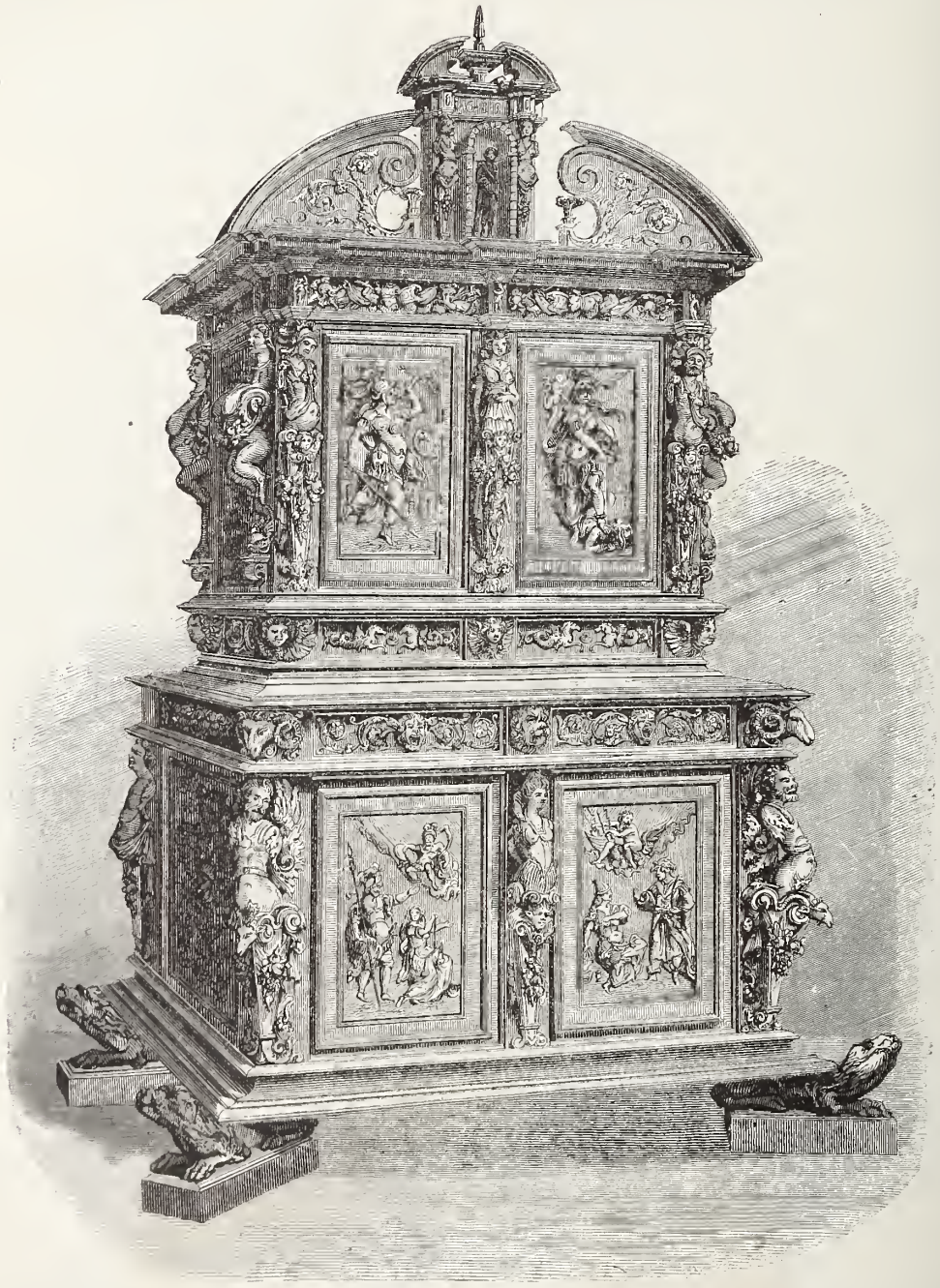
Under the Empire a reaction set in. All those relics which had escaped the dreadful catastrophe of the revolution were collected and studied. M. Denon, the director of the Museums, was one of the first to fill his cabinet with the arms, furniture, and utensils of the middle ages. Almost at the same time other individuals in various parts of the country laid the foundation of collections which have since attained to national importance. The French then began to discover for the first time that their old artists might fairly rival those of later days, and that the excesses of their revolution had not destroyed all their antique relics. The researches into the national archæology which were thus at that time aroused have been continued with unabated vigour to the present day.

The walnut-tree buffet, of which we present our readers with an engraving, is at present in the Louvre. It formed part of the collection of M. Revoil, which was purchased by Charles X. in 1827. The date inscribed on it is 1617; but it is believed that this refers to the period of its restoration or repair, and not to that of its original construction. The centre-piece, and the little crowning point at the top, appear beyond doubt to have been added afterwards.

The style is evidently that of the reign of Henry IV. It displays the great profusion of ornament of every sort, the exaggeration of forms, and the confusion of figures and costumes of every age and country, characteristic of the decoration of that period. But in the *tout ensemble* it by no means wants harmony of detail. It displays, on the contrary, a richness which pleases us precisely because of the great diversity in the means by which the effect is produced. Contemporary history and Greek mythology are mingled together. Upon the two upper panels may be seen Renown and Victory. Below, on the lower panel, is Henry IV. figuring as a warrior, ordering Justice with her scales and balance to arise. The god Mars, enthroned on a cloud, appears to preside over the ceremony. On the other side the League personified by a female, resting on a vase from which wine is flowing, in the presence of a foreigner, from whom she is imploring help. But Jupiter is preparing to strike the two allies with his vengeful thunderbolts.

The costume of one figure alone is sufficient to remove all doubts as to the period to which this interesting relic belong The head-dress adorned with a long plume, the stiff collar, th body of the dress cut squarely upon the breast, all belong to th *modes* of the time of Henry IV., and perhaps this is a portrait Mademoiselle d'Entraignes, Marquise de Verneuil.

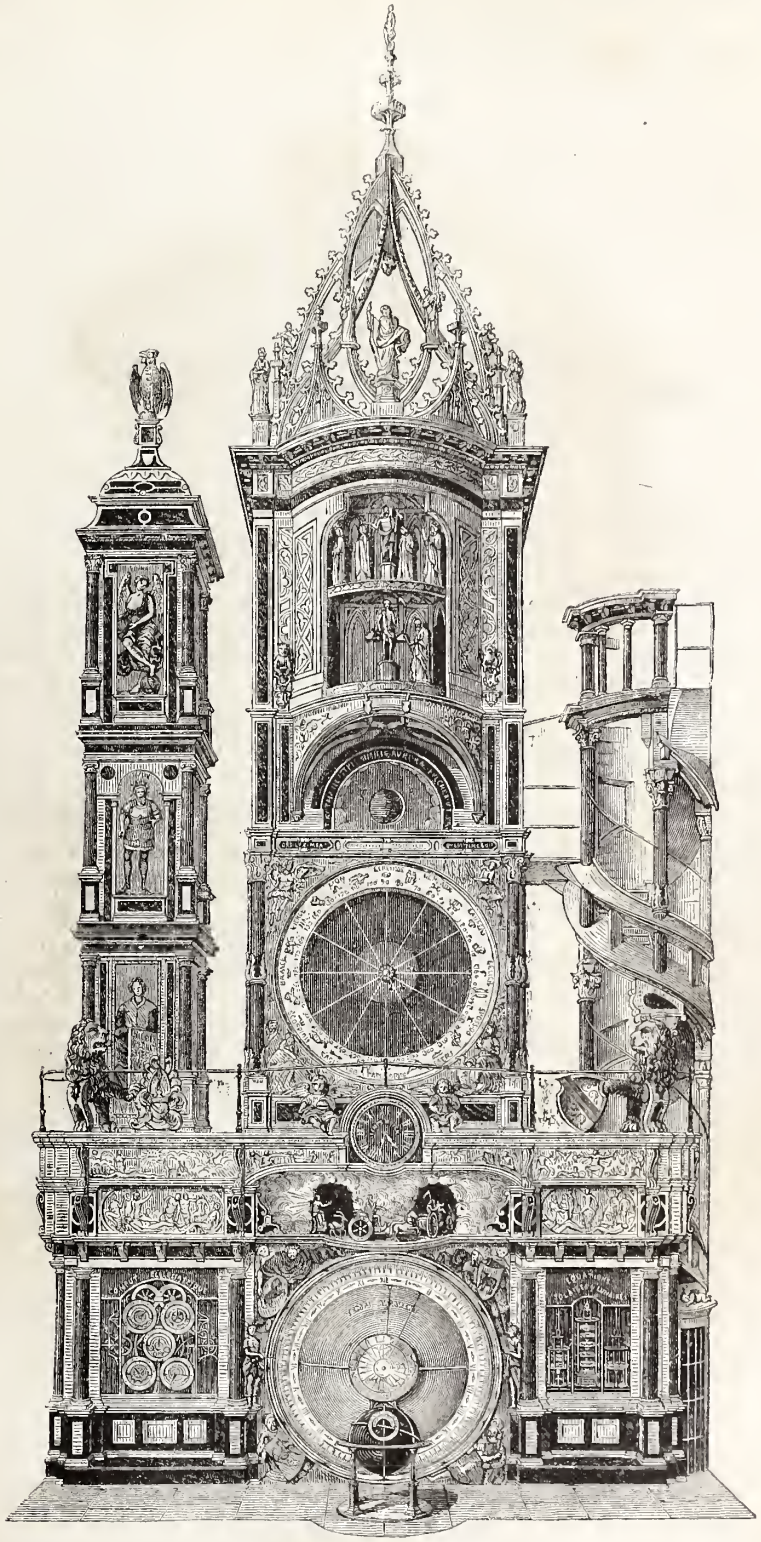
Independently of the historical interest attaching to it, the buff is a capital specimen of the wood-carving of the early part of th seventeenth century.



WALNUT-TREE BUFFET OF THE TIME OF HENRY IV. OF FRANCE.

THE ASTRONOMICAL CLOCK AT STRASBOURG.

From the East we have derived nearly everything good and great. Most of our sciences have originated there, and among the rest time-measuring had there its beginning. In almost all climates the morning, noon, and evening would be readily distinguished, and the Babylonians appear to be the first who attained to greater accuracy by the invention of the sundial, at what epoch is not known, but evidently at a very remote period. The dial of Ahaz, mentioned by Isaiah, must have existed eight centuries before the Christian era. A Grecian



ASTRONOMICAL CLOCK OF THE CATHEDRAL OF STRASBOURG, ERECTED BY M. SCHWILQUE.

sundial is preserved in the British Museum. It is thought that it served to show the hour in one of the crossroads of Athens. The following Greek inscription is placed on the exterior of the

two western faces:—"Phædrus, the son of Zoilus, a Pæonian, made this."

At a later period the Egyptians, in order to distinguish the hours at night and in cloudy weather, invented the clepsydra or water clock. This was probably a mere float, with a rod fixed upon it like a mast, and placed in a vessel of water with a hole at the bottom; as the water ran out the float descended, and figures marked on the rod at proper intervals showed the number of hours elapsed. From a bas-relief representing the marriage of Peleus and Thetis, a figure of Morpheus is introduced, holding a sand-glass made like a modern hour-glass.

In very early times we find mention of the word clock, but as this term was used to designate the clepsydra, it is improperly brought forward as a proof of the antiquity of the wheel clock, the origin of which is uncertain; nothing satisfactory being afforded in the pages of the old chroniclers till the days of Charlemagne, when the French historians describe a clock sent to that monarch by the ever memorable Haroun al Raschid, the caliph of the East. This clock struck the hour by the falling of twelve brass balls upon a bell. It had also twelve horsemen, who came out at different doors, which opened and closed again. This clock must certainly have been constructed upon the wheel principle, but even here the motive power is said to have been water.

In the twelfth century clocks moved by weights appear to have been used in Italy, and early in the fourteenth one was put up in London, which was said to indicate the hour with great accuracy. Many allusions to celebrated clocks in France, Italy, Germany, and Holland, are met with about that time. In 1364 Henry De Wick manufactured a clock for the emperor of Germany, which had two pallets worked by a crown wheel, and two weights on a lever to regulate the movements. There is good reason for supposing that clocks began to become general about that period in England. Chaucer, who was born in 1328 and died in 1400, has the following lines:—

> "Full sickerer was his crowing in his loge,
> As is a clock, or any abbey or loge."

In 1484 Walthus made a balance clock for astronomical observations. In 1560 Tycho Brahé had four clocks which indicated hours, minutes, and seconds; the largest of which had only three wheels, one having 1,200 teeth. But earlier than this Giacomo Dondi had erected at Padua his celebrated clock, which besides the hour of the day, showed the course of the sun in the ecliptic, and the places of the planets. Its author was dignified with the surname of Horologius, which is still borne by his descendants. The discovery of the isocronism of the pendulum, paved the way for the introduction of pendulum clocks. This simple, but all-important regulating power we owe to Galileo, who as he observed a lamp suspended from the roof or ceiling of a church in Pisa accidentally vibrating, suggested at once the idea of a pendulum. He first used it in his astronomical observations when he was mathematician to the grand duke of Tuscany. The son of Galileo carried out the purpose of his celebrated father.

In 1676 Barlow, a London clockmaker, invented the repeating mechanism by which the hour last struck may be known by pulling a string. Several artists followed in the same line, particularly Quare, in London, and Julien le Roy, Collier, Largay, Thiout, &c. on the continent. A London clockmaker, named Clement, invented in 1680, the anchor-escapement, which was a great improvement on the crown-wheel before in use; he also introduced the practice of suspending the pendulum by a thin and flexible spring. The adjustment of the length of the pendulum was the next important improvement. In the new Royal Exchange clock, made by Mr. Dent, a great variety of important improvements have been effected. A beautiful contrivance, among other matters, has been introduced for the purpose of preserving the motion of the wheels, during the time of winding up. This invention we owe to Professor Airy, who first applied it to the clockwork of the Great Northumberland telescope, at the University of Cambridge. Several interesting specimens of horology were collected in the Great Exhibition.

But enough; it is not our purpose to write a history of clocks—we have only at present to do with that of Strasbourg, of which we give an engraving.

The chapter of Strasbourg—so the legend runs—determined to have a clock to dignify their magnificent cathedral, and to apprise the faithful of the hour of prayer, while in addition it should teach the facts of Christianity, and the fundamental principles of true morality. For this purpose letters were issued and circulated over Europe inviting the machinists and wise men of that old time to contend for the proposed work. But one man responded to the invitation; he offered his services, they were accepted, he set to work, and in the year of grace 1352 the clock was finished. The chapter was convoked to witness the first movements of this wonderful machine. Immediately upon the striking of the hour, a cock, perched on a lofty turret, clapped his wings, and by his voice denoted the fall of the prince of the apostles. Each of the chosen twelve presented himself as a representative of one hour, the figure of the Saviour himself, the sun, the planetary bodies, the months, the seasons, the different parts of the day, the days of the week, the days of the month, the age of the world, the year of the Lord, all were symbolised with wondrous ingenuity, and unexpected skill. The chapter were astonished, and well they might be, at the marvels which the strange machinist had produced. Upon retiring to deliberate concerning the reward which should be bestowed upon the cunning workman, the priests bethought them that they might yet be shorn of their glory; he who had made one so intricate, so complicated, so wonderful, might create its fellow—other cities might boast of clocks as wonderful as that of Strasbourg: they came to a horrible resolution—they would put out his eyes, and thus deprive him of the means of accomplishing any further work. This terrible determination was carried into effect. When the poor artist was made acquainted with the cause, he cried out, "The work is not completely finished—there is yet one great omission, lead me to the place that I may perfect my work." They led the blinded man to his mechanical triumph; but upon arriving at the spot, instead of adding to its ingenuity, at one fell blow he dashed the whole contrivance to pieces. And no man ever yet has been found who could reconstruct that clock. The revenge of the mechanist was complete.

Such is the legend of the first astronomical clock at Strasbourg. In 1550 an entirely new clock was constructed for the cathedral, manufactured by the most celebrated mathematicians of that period. The death of one of these men, however, interrupted their labour, and the work was left incomplete. Its completion was afterwards intrusted to Conrad Ranchfuss, a mathematical professor at Strasbourg—better known by his Greek name Pasypodius. Under his direction the work was finished on the 28th of June, 1574. This clock having fallen somewhat into decay, was restored in 1669 by Michael Habrecht, and again in 1732 by Jacques Stranbhar.

It was on the 24th of June, 1838, that M. Schwilque actually commenced the clock represented in our engraving, which was completed on the 2nd of October, 1842.

Upon the face of the clock, on the outside of the church, are indicated the hours and their subdivisions, and the days of the week, with the signs of the planets corresponding to the season. These indications are repeated upon an inner dial, and are connected with another much smaller, which is devoted exclusively to the calendar of the months, and the holy days of feast and fast. United with all this are some very interesting automata, representing the four ages of life. Thus in the division of the twelve hours, infancy watches over the first three, childhood the second, manhood the third, old age the fourth. Death strikes the hours. The whole of the mechanical contrivance, although extremely complicated, exhibits the greatest precision.

At noon, the sounding of the bell is succeeded by a procession of the twelve apostles, who salute a figure of the Saviour which is placed upon a pedestal in close proximity. At the same time a cock perched upon the tower, claps his wings, and sounds a song of victory. The days of the week are indicated by the deities of heathen mythology,—Sunday by Apollo, Monday by Diana, Tuesday by Mars, &c. The portrait upon the base of the left tower is that of Copernicus—a fitting homage to that astronomer.

The clock was inaugurated on the 31st of December, 1842, at six o'clock in the evening, in the midst of a large assembly who had met to do honour to the genius of its inventor.

MIECISLAS I. AND BOLESLAS THE GREAT.

History has been justly called Philosophy teaching by example. By history posterity passes judgment on the past. The great men of the old time, the men who were the heroes of the battle field, the most skilful in the council, the men who were remarkable for great virtues or great vices, who stood foremost in the events of their day, and have left their name and impress on the age, are brought back again by the pen of the historian, and, living with these who lived before us, we learn the deep and solemn lesson of experience. History is something more than a chapter of accidents; every event is fraught with instruction, and the mind of the reader who thinks as well as reads is stored with something better than dates and legends,—he has gained an insight into the principles of life. The men who fought, and sung, and laboured in the past, were not different from ourselves. They were men of like passions with us; so that there is nothing abstract in the study of history. We are intimately related to the bygone, and the annals of the past are practical lessons. Again and again we find that history repeats itself—old thoughts and old feelings and old principles get into a tottering condition—all things are ready for a change, and a great man appears, and the whole course of events is changed, and the world turned upside down. These great men are the same sort of metal cast in different moulds.

The Duke Miecislas I. is to Poland what Clovis is to France. Like that monarch, his career is much obscured by the clouds and darkness of fable. Every great man's life of the old time is so obscured. He was converted to Christianity by his wife, and by his example and strenuous exertions, religion was established, and a moral influence united with the political movements of his age, which renders him famous in the history of his land.

Miecislas was born in the year 931, during the reign of Henry Oiselem, the first Saxon prince. His early life is little known. Upon arriving at a proper age, he demanded in marriage the hand of Dombrouka, daughter of Boleslas I., duke of Bohemia. That Princess was a Christian. Miecislas was married on the 5th of March, 965, abjuring paganism, and receiving the rite of baptism. He ordained the destruction of all the idols, and all the temples which had been consecrated to the ancient worship, and at the same time ordered the erection of new churches for the new faith, devoted for their support considerable portions of his domain; he wore mourning six years, to give evidence of his sincere and unalterable repentance, and died in the year 992, at the age of sixty-one. He was buried in the church of Posen.

His son Boleslas, surnamed the Great and the Valiant, is the first Polish prince who took upon himself the title of king. He prosecuted the work of his father. He reorganised the laws, and by his earnest and persevering exertions effected the greatest and most desirable change in the institutions of his country. Poland holds his memory in the highest veneration—such as we have for our own Alfred, and such as the French feel for Charlemagne. Otho III. emperor of Germany was the friend and admirer of Boleslas; with him he entered into an alliance against the inroads and usurpations of the Russian dukes, and by him also was every effort aided for elevating and ensuring the national importance and independence of Poland. The contemporary writers, who describe the meeting of the two princes at Gnesen, give a highly-finished description of the splendour of the court, and the unbounded magnificence which Boleslas exhibited. Their meeting reminds one of the Field of the Cloth of Gold, when gallant Francis and the English Tudor met together in the splendour of peace. Henry of Bavaria, the son and successor of Otho III., did not inherit any of the sentiments of his father. He made incursions into the territory of the Polish king, who in revenge seized upon the villages of Lusatia and Misnia. A continual warfare occupied the succeeding twenty years. Boleslas gradually extended the limits of his kingdom in all directions, and rendered tributary to his arms nearly the whole of the north of Europe. It was supposed that it was his ambition to make Poland the centre of Sclavonian nationality. It was after one of his great victories over the Russians that he was surnamed *Chrobry*, or Valiant. Upon entering one of the great Russian cities, a city which was then, and for a long time afterwards, the rival of Constantinople, he struck upon the golden gates with his sword, in the heat and impatience of the moment. That sword was treasured by the army, and was for more than eight centuries a holy relic, an object of veneration, highly prized, and dearly loved. Upon coronation days, and in all state ceremonies, it was worn in the girdle of the kings.

More happy than many of the illustrious conquerors who preceded, and who followed him, Boleslas died deeply regretted by all in his vast empire. So superior was he to the majority of kings and petty sovereigns who reigned in the northern parts of Europe, that it was an old belief that he was more than man, not only a king—cunning man as they say king really means—but one that was God-inspired. The enthusiasm of his people was deep and earnest, for by his rare powers and wonderful qualities he had exalted the Polish nation—he had found it in a transition state, just emerging from barbarism and old idolatry, and he left it a mighty and influential kingdom. Even his conquests had added to the happiness of the conquered, for he had carried civilisation and religion along with him; and every peaceful hour had been devoted to the civil administration of law on the most just and equitable principles, the establishment of every institution upon a solid basis, the overthrow of all that was calculated to debase a people, and the upraising of everything that was likely to elevate and extend national greatness. In all these reformatory measures he was aided by his ministers, who were known by the name of the Council of Twelve, and from whom was derived the senate of Poland.

Boleslas died April 3, 1025, in the fifty-eighth year of his life, and twenty-sixth of his reign. He was buried in the Cathedral of Posen by the side of his father, Miecislas.

After many years, a monument of art was commenced in memory of the two founders of the Polish kingdom, and was erected over their tomb. The first idea of this tardy homage is attributed to Wolicki, architect of Posen and Gnesen. He by repeated efforts gained a number of subscribers for the purpose, but the events of 1830-31, and the death of Wolicki, suspended the project for five years; it was recommenced by the Count Edward Raczynski. M. Lanci, architect of Cracovie was engaged to restore the chapel of the Cathedral of Posen where reposed Boleslas and Miecislas. The sculptor Rauch of Berlin was requested to furnish the statues of the old kings, and in 1838 the proposed model was publicly exhibited. The author of "Art in Germany," M. Fortonerom, thus speaks of the bronze group which he privately viewed in the studio of Rauch.

"The two first Christian kings of Polaud, Miecislas and Boleslas, are represented by the sculptor with the difference of their characters fully portrayed: the father with all the appearance of a true saint, in lieu of the sceptre he bears the cross, with which it is his mission to rule over his people; the son with a sombre visage and all the gravity of age, his hand resting on his sword as if that sword was his supreme law. The two figures resemble the two ages of the men themselves; their costumes are widely different from each other, the one in the fashion of the Byzantine, and the other of a later period."

The sword which is in the hand of Boleslas is intended to represent the famous sabre of the golden gates. The bottom of the robe of the father is embroidered with a lion, the Polish eagle, and other heraldic devices, which were not used until a later period than that of Miecislas, but the artist has by these signs depicted the history of Poland.

We pass no criticism upon the merits of this work of art—the physiognomy, the attitude, the drapery speak for themselves. Looking upon them we recall old times, we think of the condition of the people at that period of Polish history, and of the wonders that those two men wrought.

It was in 1733 that Russia first began to exercise an influence

over Poland. In 1764 Catherine II. placed her favourite, Count Poniatowski, upon the throne; and he, too feeble to arrest the progress of disorder, brought ruin upon his country, and caused a partition between Austria, Prussia, and Russia. The Poles beginning to open their eyes to the defects of their constitution, wished to abolish the elective monarchy, and to found a system of strength of Austria, Russia, and Prussia, and a third and last division of the Polish territory was then made. The last king of Poland died at St. Petersburg, a pensioner of the Russian emperor.

In 1815 Poland was divided anew by the congress of Vienna. The part assigned to Russia received the name of *the kingdom of*

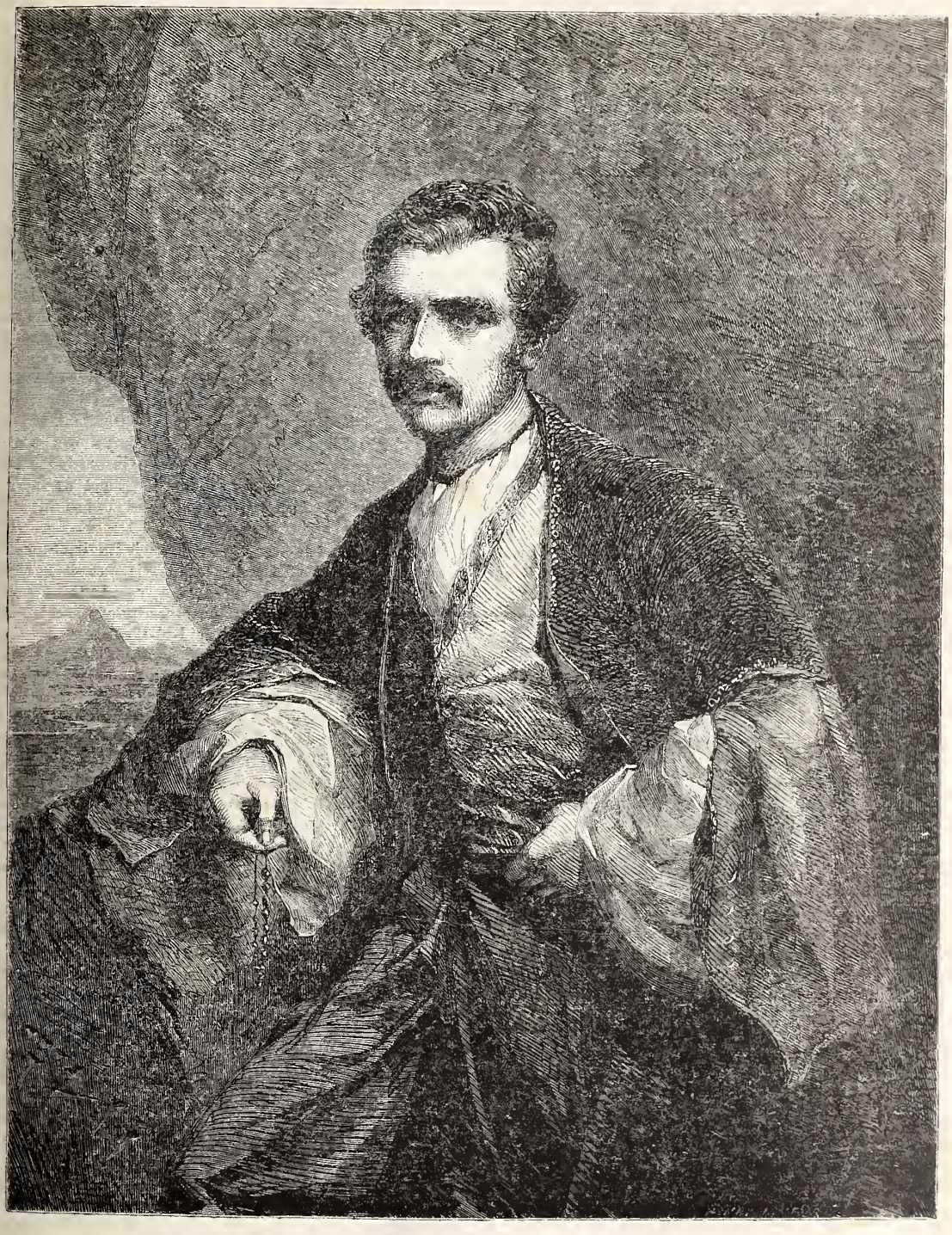


MIECISLAS I. AND BOLESLAS THE GREAT, GROUP IN BRONZE, BY RAUCH, IN THE CATHEDRAL OF POSEN.

national representation, consisting of the three estates of the kingdom; but Russia opposed it, and a second partition then took place, still more ruthless than the first. It was then that the celebrated Kosciusko took arms for the deliverance of his country, and covered himself with glory in that immortal struggle. But he was soon obliged to yield to the united

Poland, with a constitution, and the Grand Duke Constantine viceroy. For fifteen years she enjoyed profound peace, b excited by the French Revolution of 1830, the Poles in that ye again rose in arms, but after an heroic struggle, instead of achie ing the independence of their country, they only brought ne misfortunes on themselves.

AUSTEN HENRY LAYARD, D.C.L., M.P.



COPIED BY THOMAS, FROM AN ENGRAVING PUBLISHED BY MESSRS. COLNAGHI AND CO. PAINTED BY W. H. PHILLIPS.

)R. LAYARD is of French descent. His ancestor was the head f a noble protestant family, and was driven from his native ountry by the revocation of the Edict of Nantes. He proceeded o Holland where he received a commission as major in the army, vhich the Prince of Orange was then preparing for the invasion f England, and after the revolution he settled here. Dr. Layard's randfather was the Rev. Dr. Layard, Dean of Bristol, and his ather filled a high civil office in Ceylon between the years 1800 nd 1813, and his uncle was celebrated for his efforts to circulate he Scriptures amongst the heathens in the east.

Austen Henry Layard was born at Paris on the 5th of March, 1317, and received the greater part of his education abroad, having only been for a short time at school in England.

During his youth he resided with his father at Florence, a circumstance which had a marked influence upon his after career. He had constant access to the splendid collections of works of art contained in the Pitti Palace and in the Tribune, as well as to the rich libraries for which Tuscany is famous. Not only did he thus become familiar with the Italian language and literature, but his taste was formed upon the finest

models of sculpture and painting in the world, and the ardour which these glorious works kindled within him led him to pursue his studies with such diligence that he soon obtained a competent knowledge of the ancient classics, and rendered himself master of several of the modern languages of continental Europe. There was one accomplishment which he here acquired however, which outweighed all others in importance, and however trifling it might at that period have seemed in his own eyes, it has since been the means of conferring inestimable advantages upon science. The constant practice of sketching the works of art in the Florence galleries, as well as the glories of the Italian scenery, soon rendered him a skilful draughtsman. For some time after his departure from Italy he appears to have neglected drawing altogether; but when he began the excavations at Nimroud, his old acquirement came opportunely to his aid and enabled him to take rapid and accurate sketches, without which many of his severest labours would have proved utterly vain. He was not provided with a competent artist when he commenced the undertaking, and as many of the finest of the Nineveh sculptures were composed of gypsum, and appear to have been subjected to the action of fire at the destruction of the city, the sudden exposure to the air after being buried for so many thousand years caused them to crumble to pieces, often within a few minutes of their discovery. We may guess then, what would have been Dr. Layard's chagrin, if he had been obliged to stand helplessly by, while so many splendid works of art were passing irretrievably to destruction, without the power of fixing upon paper any accurate and lasting memorial of their form. All this, and more, however, he was enabled to accomplish, and the pencil which had contributed to the amusement of early youth, thus became, when pressed into the service of scientific research, a sort of magic wand to save the finest remains of a lost civilisation from complete annihilation.

On his return from Italy to England it became necessary for him to choose a profession, and his attention was directed to the law by a relative who was enabled to hold out considerable inducements to follow his advice. Dr. Layard committed himself without hesitation to the course which was thus pointed out to him, and pursued the studies necessary to qualify him for his new calling with all the ardour and perseverance which characterises his temperament. But a fact soon became evident, which, one would think, his friends should have perceived at the very beginning,—that a man whose early life had been devoted to the study of the beautiful in nature and in art, and whose imagination, splendidly disciplined as it was, delighted to carry him in dreams to scenes which the perished greatness of the ancient world had glorified, or to which the semi-barbarous but picturesque manners of modern races still lent attraction, could never settle calmly down in a profession in which industry is in truth but the end of bitterness, and in which rewards are never reaped till the strength has been abated by painful and forbidding drudgery, and the light of the eye grown dim through care and watching. Habits acquired by travel and residence in foreign countries, tastes formed by the daily contemplation of the highest forms of beauty whether in literature or art, strong love of adventure, and a disposition to rove in whatever field of knowledge pleased him, could but ill consort with that patient grappling with dry and repulsive details which is necessary to achieve either fame or fortune in Westminster Hall.

The result may be readily imagined. After a short struggle Dr. Layard gave way to his inclination, and left England in company with a friend, and set out to travel.

He visited Russia in 1838, and the greater part of Europe in the previous years. He left England in 1839, with the intention of making his way through Central Asia to India. Unfortunately, Dr. Forbes had recently been murdered in the Seistan, and he found that at that time it would have been useless to attempt the journey through that province. Not wishing, however, to give up the attempt altogether, he determined to reside amongst Baktyari tribes, and gain a better knowledge of Eastern life and languages, until the opportunity of carrying out his original plan presented itself. The news from Affghanistan and the defeat of the British troops compelled him to relinquish it altogether. His object in going to India was to study the political state of the country, and its inhabitants, with reference to the government of the East India Company.

On his way he passed from Dalmatia into Montenegro, where he lent his assistance to an enlightened and enterprising chieftain in civilising his semi-barbarous subjects. He then travelled through Albania and Roumelia, *en route* to Constantinople, where he arrived towards the close of 1839. He soon after set out on a tour through Asia Minor and other eastern countries, and for the next few years his life was in truth a nomade one. He adopted the costume and led the life of an Arab of the desert and made himself thoroughly familiar with the language and manners of the various Turkish and Arab tribes. In 1840 or 1841 he transmitted to the Royal Geographical Society an account of a journey from Constantinople to Aleppo, and in the same year he left Ispahan, in Persia, in company with Schiffeer Khan, a Baktyari chief, for the purpose of exploring Susa and other places in the Baktyari mountains. He crossed the highest part of the great chain of Mungasht, and visited the ruins of Manjanik which are of considerable extent. He also examined the curious ruins in the plain of Mel Amir, where he copied some of the cuneiform inscriptions, and states that some of the sculptures two colossal figures on which represent two priests of the Magi appear to be of very ancient date. During this journey he was on one occasion attacked by a wild tribe of Dinaruni, and robbed of his watch, compass, and other articles; but on complaining to the chief they were all restored to him. He was in the habit of traversing the wildest districts quite alone, and was never molested, except in this instance, and at the period when this occurred the country was in a state of war.

In 1842 and 1843 he spent a considerable length of time in exploring the province of Khuzistan, in Persia, an account of which he transmitted to the Geographical Society. In this he relates a curious incident illustrative of the barbarity of the chiefs of the district. A eunuch, named Motamid-ed-Dowleh getting the followers of Wali Khan, the legitimate chief of the Mamesseni, in his power, treated them thus:—"He built a lofty tower of *living men;* they were placed horizontally one above the other, and closely united together with mortar and cement, their heads being left exposed. Some of these unfortunate beings lived several days; and I have been informed that a negro did not die until the tenth day. Those who could eat were supplied with bread and water by the inhabitants of Shiraz, at the gate of which the tower was built. *It still exists*, an evidence of the utter callousness to cruelty of a Persian invested with power."

All this travelling, and the intimate knowledge with the language and manners of the various Persian and Arab tribes, eminently fitted Dr. Layard for the great task he was now about to undertake; and we may safely doubt whether a less extended acquaintance with oriental traditions and antiquities would have supplied that spirit of scientific enthusiasm, and judicious and well-directed energy, which presided over his labours at Nimroud, or that picturesque beauty of description and accuracy of detail, which lend to his writings so much of their value and interest. We cannot describe the truly Arabian love of a roving life, unshackled by the ties or forms of civilisation, combined with the student's longing to explore the haunts of the mighty men of yore, and test the truth of twenty hundred years of tradition better than in his own words. The opening paragraph of the first volume of his great work paints beautifully their delight and aspirations. As we read it we fancy we hear the deep breath of the sleepers around the lonely cabin-fire, or the Arab dog, like a faithful sentinel, barking his challenge through the clear air of an eastern night, as he keeps watch and ward over the flocks of the tribe. "During the autumn of 1839 and the winter of 1840," says Mr. Layard, "I had been wandering through Asia Minor and Syria, scarcely leaving untrod one spot hallowed by tradition or unvisited one ruin consecrated by history. I was accompanied by one no less curious and enthusiastic than myself. We were both equally careless of comfort and unmindful of danger. We rode alone; our arms were our only protection; a valise behind our saddles was our wardrobe; and we tended our own horses, except when relieved from the duty by the hospitable inhabitants of a Turcoman village or an Arab tent. Thus unembarrassed by needless luxuries, and uninfluenced by the opinions or prejudices

of others, we mixed amongst the people, acquired without effort their manners, and enjoyed without alloy those emotions which scenes so novel and spots so rich in varied association cannot fail to produce."

"I look back with feelings of grateful delight to those happy days, when free and unheeded, we left at dawn the humble cottage or cheerful tent, and lingering as we listed, unconscious of distance and of the hour, found ourselves as the sun went down under some hoary ruin tenanted by the wandering Arab, or in some crumbling village still bearing a well-known name. No experienced dragoman measured our distances, and appointed our stations. We were honoured with no conversations by pachas, nor did we seek any civilities from governors. We neither drew tears nor curses from the villagers by seizing their horses, or searching their houses for provisions; their welcome was sincere; their scanty fare was placed before us; we ate, and came, and went in peace."

"I had traversed Asia Minor and Syria, visiting their ancient seats of civilisation, and the spots which religion has made holy. I now felt an irresistible desire to penetrate to the regions beyond the Euphrates, to which history and tradition point as the birthplace of the wisdom of the west. Most travellers, after a journey through the usually frequented parts of the East, have the same longing to cross the great river, and to explore those lands which are separated on the map from the confines of Syria by a vast blank, stretching from Aleppo to the banks of the Tigris. A deep mystery hangs over Assyria, Babylonia, and Chaldæa. With these names are linked great nations, and great cities dimly shadowed forth in history; mighty ruins in the midst of deserts, defying by their very desolation and lack of definite form the description of the traveller; the remnants of mighty races still roving over the land; the fulfilling and fulfilment of prophecies; the plains to which the Jew and Gentile alike look as the cradle of their race. After a journey in Syria the thoughts naturally turn eastward; and without treading on the remains of Nineveh and Babylon, our pilgrimage is incomplete."

Dr. Layard, therefore, immediately made preparations for paying a preliminary visit to Mosul; and after a hazardous journey through Kurdistan, succeeded in reaching it in safety on the 10th of April, in 1840. After a short stay in the town, he and his companion rode to inspect the mighty ruins on the east bank of the river. They made an excursion to an Arab village called Hammum Ali, around which are still the vestiges of an ancient city. Their object was to explore the mound of Kalah Sherghat, a vast ruin on the Tigris, about fifty miles below its junction with the Zab. As they stood upon an eminence outside the village the whole plain around appeared studded with mounds, one of a pyramidical form rising high above the rest, and beyond it the waters of the Zab. These mounds were just the same when Xenophon led back the ten thousand Greeks across the plains of Mesopotamia, twenty-two centuries ago, and even then they were only *supposed to be* the remains of an ancient city. What a stupendous interval must have elapsed since it was flourishing in its prime! Lucian, the Greek writer, lived in the first century after Christ, but he states that even in his day the very site of Nineveh was forgotten, and from that time to the present no traveller had ever attempted in right earnest to discover it, and on the desolate plain of Kalah Sherghat there were no visible remains of civilisation beyond a few pieces of broken pottery and inscribed bricks. Here was a field of labour and research that might well tempt the loftiest ambition; to make these mounds deliver up the treasures of ancient art and glory which they had concealed for three thousand years and more, and tell the world of battles, sieges, strange and eventful fortunes of which history had taken no note. But besides stimulating his zeal and curiosity, the contemplation of these remains produced in Dr. Layard's mind a deeper and more lasting impression than had ever been made by the mightiest ruins of Greece or Rome. "The scene around," says he, "is worthy of the ruin the traveller is contemplating; desolation meets desolation; a feeling of awe succeeds to wonder; for there is nothing to relieve the mind, to lead to hope, or to tell of what has gone by. These huge mounds of Assyria made a deeper impression on me, gave rise to more serious thought and more earnest reflection, than the temples of Balbec or the theatres of Ionia."

He again examined the ruins of Nimroud when descending the Tigris on a raft, in the middle of April. He met with a great dam, also, consisting of huge square stones fastened together by cramps of iron, over which the river flows in a formidable cataract. The dams were intended to cause the river to rise into the numerous canals which intersect the country. They greatly impeded the fleets of Alexander, but even in his time their origin was unknown, and they were supposed to be the work of an ancient and extinct nation. After inspecting these remains Dr. Layard's mind was made up, and he determined some day or other thoroughly to examine into this great mystery.

He paid another visit to Mosul in the summer of 1842, and then found that M. Botta, the French consul, had already commenced excavations in the great mound of Koyunjik, and had discovered various sculptured slabs of gypsum, and other remains of a deeply interesting character; and as his drawings and specimens were all forwarded to Europe, his scientific friends in Paris easily induced the French minister of the interior to make him a grant of the public money to enable him to carry on his labours. Dr. Layard had been introduced to Sir Stratford Canning (now Viscount Stratford), the British ambassador at Constantinople, who instantly perceived how useful his varied attainments, and intimate knowledge of the eastern languages and manners, might be to the embassy. He was accordingly employed by him in several missions of an important and delicate nature in Albania, Servia, Bulgaria, and Asia Minor, which he executed to his entire satisfaction. In the mean time M. Botta continued his explorations, and as he allowed Dr. Layard to inspect his drawings as they passed through Constantinople, on the way to France, the latter brought the subject under the notice of Sir Stratford, who manifested the liveliest interest in the success of the enterprise, and signified his intention of affording Dr. Layard every possible aid in case he commenced to make any researches himself. He accordingly returned to Mosul in November, accompanied by Mr. Ross, an English merchant, and one or two servants; and taking up his abode in an Arab hut, and having hired six of the peasantry to assist him, he set to work in right earnest.

It is not our present purpose to enter into the particulars of his discoveries: this has been already done in the last volume of the present work. He had great difficulties to contend with in the superstitions of his Arab labourers, and the avarice, caprice, and tyranny of the pacha, Keritli Oglu, a ferocious ruffian who was the scourge of those whom he was sent to govern. He frequently interrupted the progress of Dr. Layard's work upon one pretence or another, and it was not until he obtained a firman, or vizirial letter from the sultan, through the instrumentality of Sir Stratford Canning, that he was enabled to pursue his course unmolested. This document not only authorised the excavations, but the removal of the sculptures. He was out gazelle-hunting when he received it, and he "read by the light of a small camel-dung fire the document which secured to the British nation the records of Nineveh, and a collection of the earliest monuments of Assyrian art." We are compelled to add, however, that the British nation was as unworthy of this as of any collection of works of art which it has ever received, for the government was most unwilling to advance one farthing to pay for its transmission to London. If it were not for the zeal, perseverance, and indomitable energy of private individuals, England would at this moment be as famous for the entire absence of everything that tends to the advancement of science, and the elevation of the public taste, as any petty kingdom in central Africa. For all sorts of jobbery, all sorts of pensioning, for all sorts of expeditions which have worthless objects in view, and fail in attaining even them, there is money in abundance; but here was a gentleman expending his health and strength and private resources, in the endeavour to secure to his country some of the most stupendous and important historical records in existence; and for months, notwithstanding the prayers, entreaties, and remonstrances of the scientific world, the government suffered him to toil on unaided; and had it not been for an amount of courage and fortitude which, exerted as they were in one of the noblest of causes, must for ever reflect honour

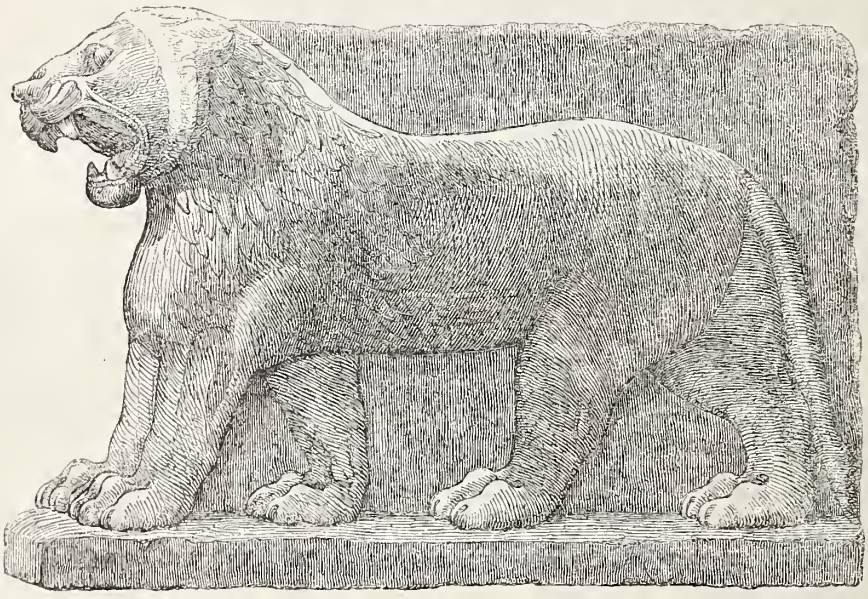
on his name, the Nineveh sculptures would at this moment be mouldering to decay in the mounds, or bleaching on the banks of the Tigris, for the want of a sum which would be but a drop in the ocean of our national expenditure.

Steamers being unable to ascend the Tigris, Dr. Layard was obliged to float the best of the sculptured slabs, which he had succeeded in excavating, on rafts formed of inflated skins down to Bagdad, where they were placed on board the vessels for transportation to England.

His health having suffered greatly from overwork and anxiety under so warm a climate, he now made an excursion to the Tiyari mountains, inhabited by the Chaldean or Nestorian Christians. He gives in his work some very interesting details relative to the history and mode of life of this primitive and simple people. His account of the massacre of ten thousand of their number, men, women, and children, in 1843, by the ferocious Mussulman, Beder Khan Bey, is horribly graphic. His description of a visit to the high ledge of rocks where great numbers had fled for refuge, and where, having surrendered upon promise of quarter, they were slaughtered without mercy, where the earth was covered with skulls of all ages, from the child unborn to the toothless old man, heaps of blanched bones, mingled with the long plaited tresses of women, skeletons hanging entire to the dwarfed shrubs, shreds of dis-

The university of Oxford conferred upon him the honorary degree of D.C.L., at the Grand Commemoration in 1848. At the end of that year he returned to Constantinople as *attaché* to the embassy there, and in the following year resumed the excavations at Nineveh, where he remained until the summer of last year. He is now engaged in preparing for the press an account of the results of the excavations, and particularly of the discovery of the important annals of the Assyrian kings contained in the Bible.

When the Earl of Granville, succeeded under the whig administration, to the office of secretary for foreign affairs, vacated by the resignation of Lord Palmerston, one of his first acts was the appointment of Dr. Layard to the under secretaryship. His lordship, during his short tenure of office, gave many proofs of high diplomatic talent, and by a judicious mixture of dignified firmness and conciliation, he succeeded without sacrificing the honour of the country, in restoring amicable relations with many of those powers whom previous events had estranged from us. But in Dr. Layard's appointment he performed an act which did more to raise him in public estimation than any well planned stroke of his foreign policy. He showed that, nobleman as he was, he was not bound by the stupid aristocratic prejudices which have been so long the bane of this country, and have committed so many of



THE ASSYRIAN LION OF THE NINEVEH SCULPTURES.

coloured linen and well-worn shoes,—is written with great power, and we regret that our space does not permit us to transcribe it.

Upon his return to Mosul, he found letters from England, informing him that Sir Stratford Canning had presented the sculptures which had been already sent over, to the British nation, and that the government had at last granted funds to the British Museum, for carrying on the excavations at Khorsabad and elsewhere. Although the grant was miserably small and inferior to that given to M. Botta by the French, Dr. Layard resolved to turn it to the best account, and by uniting in his own person the various offices of draughtsman, sculpture packer, and overseer of the workmen, he was enabled to bring his labours to a prosperous issue, and bestow unheard of benefits on science.

Upon his return to England, though suffering from aguish fever, caught in the damp rooms which he was obliged to occupy at Nimroud, he prepared his work for the press, and for the trustees of the British Museum, a volume of inscriptions in the cuneiform character. His MONUMENTS OF NINEVEH, a splendid folio, containing one hundred magnificent engravings of the Nineveh sculptures and remains, from drawings taken by himself on the spot, affords another proof, if another were wanting, of what his many-sided talent is capable of achieving. It is one of the most remarkable works of art of the present day.

England's dearest interests to the keeping of imbeciles whos only recommendation was the accident of their birth. He prove that he was willing to recognise other claims to share in th administration of public affairs, apart from that of connexion wit the "great houses," and that he thought a life of patriotic de votion to science, a weightier testimonial than the most thorough going political partisanship. His lordship doubtless was abou to commence a new era, and had adopted for his motto, *Palma qui meruit, ferat.* We have only to regret that Dr. Layard shoul have had so little time to reap the fruits of so enlightened a policy He has just been returned as the representative for Aylesbury and all who are anxious to see the House of Commons contain larger measure of intellect, learning, energy, and business habi than heretofore, (and who is not?) will heartily rejoice at h success. Him who has shed so much honour on England, Engla should delight to reward.

The accompanying engravings are taken from some of the sculptures which have last arrived from Nimroud, and are deposited in th British Museum. The two last appear to represent a royal hunting party; the lion pierced with arrows, is bounding up furious into the chariot, while warriors with shields and short swords a tack him in the rear. Below they appear to be returning hom and the king receiving a refreshing draught in a bowl, or vas

he lion in the first engraving displays great accuracy and close observation of nature. The only thing peculiar in it is that it as five legs—a circumstance, in connexion with the Nineveh sculptures, which we have already noticed. It is rather singular that greater art should be displayed in the representations of beasts than in those of the human figure. There is an amount of life and energy in the lions in these sculptures that would do credit to many a modern artist.



A KING HUNTING THE LION.



THE KING'S RETURN FROM THE LION HUNT.

UNIVERSITIES AND COLLEGES.

The Report of the Commissioners on the subject of Oxford University, recommending reforms which would be tantamount to a revolution in that ancient seat of learning, suggest to us that our readers might like a brief historical view of universities and colleges in Europe and America. This we now proceed to give: The words university and college, though often confounded, are not identical in meaning, nor was either in its original use confined to places of education. "University," from the Latin *universitas*, means the whole of any body corporate as contradistinguished from its parts. Indeed, it was used in a sense equivalent to our word corporation. Thus there were, in ancient Rome, universities of bakers, tailors, of publicans, or farmers of the revenue, of scribæ, and other bodies such as in the middle ages were called guilds. They had a juridical character, and an essential feature of their constitution was the capacity of obtaining and inheriting property. This applies also to the Roman words *collegium* and *corpus*, from which we derive college and corporation, with nearly the same significations.

The most ancient universities in the world were those of Paris, Bologna, and Salerno; and in application to them, the word university retained for a long time traces of its original comprehensive signification, and it was not till after the lapse of ages, that it was restricted to an institution, viewed simply as a chartered seat of learning.

The school of Bologna was *Universitas Scholarum*, that is a corporation of students. In the university of Paris, the teachers

only were incorporated, and it was called a *universitas magistrorum*. Sometimes there was in conjunction, a university of artists, corresponding probably with our word *faculty*, and distinguishing the secular professors from the theological.

There were seminaries attached to most of the cathedrals and monasteries of the middle ages, in which the clergy were educated, and also the upper classes of the laity, poor youths of promising talent often receiving their education gratuitously. All were instructed in the *Trivium* and *Quadrivium*, which comprehended the whole of what was then considered a liberal education. There was in each of these seminaries at least one "Scholasticus" to instruct the junior students in grammar and philosophy, and a "Theologus" to teach divinity to the more advanced. In the days of Abelard, the divinity students at Paris assembled in the church of Notre Dame.

In the course of time, the doctors of theology constituted themselves into a separate faculty, and the doctors of canon law and medicine soon followed their example. Thus from the ecclesiastical seminaries grew up the universities throughout Europe, among the oldest of which must be ranked Oxford and Cambridge. Aberdeen was a monastery in which youth were instructed in theology, the canon law, and the school philosophy, at least 200 years before the University and King's College were founded.

As most of the universities were formed after the model of those of Paris and Bologna, a sketch of the constitution of these will suffice to show their general character. The university of Paris was attended by four "nations," as they were then called, and have been till recently in the city of Rome,—namely, French, English or German, Picards, and Normans. The university consisted of seven bodies or sub-incorporations, the four nations under their procurators, and the three faculties under their deans. The rector was the head of the university, and was elected by the procurators, the professors having no vote. The students were to a large extent ruled by the independent jurisdiction of the university. From the decisions of the Rectorial Court there was an appeal to the university, and from that to the parliament of Paris. Each faculty had its own common school. At an early period colleges were established within the university of Paris by private individuals or religious institutions, designed at first for poor scholars, but ultimately assuming the character of boarding houses for all classes of students. The college of the Sorbonne, chiefly theological, was founded in 1250. Degrees were conferred in the faculties of theology, canon law, medicine, and arts by the deans, with the concurrence of the chancellor of Notre Dame.

In the 12th century Bologna was celebrated as a school of civil law, and there foreign scholars from all nations enjoyed peculiar privileges. The professors were treated with the highest consideration in the state. Under the emperor Frederick, "the four doctors" of Bologna were appointed to investigate the prerogatives of the crown, in order to determine how far the immunities claimed by the Lombard towns were usurpations. To have studied at Bologna was a passport to state employments, emoluments, and honours, not only under the emperor, but throughout Christendom. As this was a corporation of students, these had the right of choosing the rector, a right which was confirmed to them by emperors and popes. The foreign students alone were entitled to vote in the assemblies. They were divided into citra-montane and ultra-montane, the former being composed of seventeen "nations," and the latter of eighteen, the rector being chosen by them in rotation, and the council consisting of one or two representatives from each. The rector claimed exclusive jurisdiction in all cases where one or both of the parties were students. The students elected the professors, who were placed under the jurisdiction of the rector, by whom they might be fined or suspended for misconduct. The degree of Doctor was conferred by those who had already received it. First, there were only Doctors of Civil Law; afterwards, there were Doctors of Canon Law; those who obtained both were "LL.D." Salaried professors appeared for the first time in Bologna, in 1279. The doctors taught in their own houses, or in hired rooms; and their method of tuition was by lectures, examinations, and disputations.

In all the universities the Aristotelian philosophy prevailed, the great Stagyrite ruling supreme in the realms of thought. The academic system spread rapidly throughout Europe, numerous universities having been established in all its principal nations. The intercourse thus promoted between the leading minds of each, and the universal use of the Latin language among the learned, must have done much to compensate for the want of the press in those rude times. Not the least curious feature of the universities was their power of self-government.

The Reformation considerably modified their character, and restricted their privileges. They were still, indeed, organised as before, with political corporations, privileged jurisdiction, power of making by-laws, and the faculties and modes of conferring degrees which custom had established. But they lost in a great measure their political importance, and instead of being arbitrators between contending potentates, they were ranged as partisans in the great wars of opinion produced by the Reformation and the invention of the art of printing. On both the Roman Catholic and the Protestant side, the numerous universities erected after the Reformation assumed a religious character. Owing to various social causes the old scholastic system, adopted in both, gradually sunk in public estimation. The exigences of war and the purposes of navigation gave importance to mathematics and the practical sciences. The extension of primary and secondary schools gradually raised the standard of education in the middle and lower classes; and thus the wood, so to speak, grew up round the venerable old trees which had so long reigned in solitary grandeur, diminishing their apparent magnitude, and lessening the awe which they had inspired. The multiplication of books and the growth of public opinion, tended to produce the same effect. "The increasing number of learned societies raised up a body of non-academical *literati*, hostile, in many instances, to the academical; and the public, looking only to the transactions of these societies, forgot that their members were indebted for their training to the universities. The presumptuous spirit of amateur dabblers in science undervalued these institutions, and in the feverish spirit of innovation which occasioned or accompanied the French revolution, they, too, were denounced. In France the old universities have entirely disappeared. In the rest of Europe, as soon as the storms of revolution had passed over they revived, and adapting themselves more to the social necessities of the age, have, in many instances, started with increased energy on a fresh career of utility."*

We shall now direct our attention to our own universities, ancient and modern. The Cambridge University is said to have been commenced by Sigebert king of the East Angles, about the year 636. But it lay neglected during the Danish invasions. It was partly restored by Edward the Elder, in 915, and learning began to revive in the early part of the twelfth century, when Henry I. and Henry III. bestowed many privileges upon the town. In Wat Tyler's and Jack Straw's rebellion, in the reign of Richard II., the insurgents entered Cambridge, seized the University records, and burnt them in the market-place. Cambridge now contains thirteen colleges and four halls. Peter House is the most ancient. King's College is considered the noblest foundation in Europe, and the Chapel one of the finest pieces of Gothic architecture in the world. Cambridge has been distinguished by some courageous acts of resistance to despotic power. In 1687 it refused the degree of M.A. to Father Francis, a Benedictine monk, and also the presidency of Magdalene College to Farmer, a Roman Catholic, in defiance of the mandate of James II. Cambridge has been the favourite university of the whig aristocracy and Oxford of the tories. The latter has always leaned more to the side of despotism in politics and catholicism in religion. They have also differed in this—that Cambridge has excelled in mathematical science, and Oxford in classics.

Oxford, our chief seat of learning, has been somewhat celebrated in parliamentary history. Henry III., compelled by his barons, summoned a parliament there in 1258; and the first clear account we have of the representatives of the people forming the House of Commons, is in the 42nd of Henry III., when it was settled by the statutes of Oxford, that twelve persons should be chosen to represent the Commons in the three parliaments which, by the 6th statute, were to be held yearly. A parliament assembled

* *Standard Library Cyclopædia.*

ford, in 1625, in consequence of the plague then raging in ndon. And in 1644 Charles held his last parliament there, isisting of the members of both houses that were devoted to his erests.

The foundation of Oxford University is ascribed by some to fred the Great. But others maintain that no institution worthy the name existed there previous to the Norman Conquest. It ntains twenty colleges and five halls, none of which dates earlier an the thirteenth century. The Commissioners, in their recently blished report, observe that—"Of the proposals which affect university, the most important are those which we have made remodelling the constitution and for abolishing the existing nopoly of the colleges and halls, by allowing students to reside Oxford without the expense of connexion with those bodies. regard to the colleges, we would especially urge the immediate cessity of opening the fellowships and scholarships, of attaching fessorships to certain colleges, of increasing the number and lue of scholarships, of granting to the colleges the power of ering the statutes, and, above all, of prohibiting as unlawful oaths to observe the statutes."

The state of the university is a curious illustration of the blind rship of antiquity—clinging to the forms of the past, regardless the exigences of the present—religiously preserving the cloth- g of a society whose spirit departed centuries ago. The report clares that if one look only to their statutes, the colleges of ford are now what they were in the times of the Plantagenets d Tudors; and if the Laudean code be binding, the university now what it was in the reign of Charles I. Yet these statutes d laws every student is sworn to observe, while, in fact, lmost every distinct purpose, and every particular object of e founders, almost every detail of government and administra- n, has been neglected and superseded."

The Commissioners recommend a radical change in the govern- nt of the university, giving more power to the body of profes- rs, which, however, is to be extensively remodelled. The dis- linary changes include the abolition of promissory oaths, the scontinuance of the absurd and pernicious distinction between blemen, gentlemen commoners, and commoners—a check on e credit given to undergraduates—and liberty of residence in ivate lodging under proper superintendence, without the expense connexion with any college or hall. The commissioners pro- se public examination before matriculation, and the removal of restrictions as to fellowships and scholarships. The fees are to equalised, and the accounts all annually published.

We do not perceive any recommendation as to the test which w confines the advantages of this great national seat of learning the members of the established church. All who now matricu- e are obliged to subscribe the Thirty-nine Articles, which, we r, some presbyterians and other dissenters have done thought- sly, dazzled by the splendid prizes of that opulent establish- nt. It would be a very imperfect reform, and in ill keeping th the spirit of the report, if this institution, in the midst of a tion of various religious denominations, whose adherents are all ually loyal, should be confined to the members of a single urch, by a test which only excludes sincerity, and was devised an age when all dissent was under the ban of the state. In ncluding their report the Commissioners remark,—

"In Oxford and Cambridge the colleges have obtained a complete eponderance over the university, and the old university con- itution is in practice changed. So great has been the change, at many people, and even some learned judges, have erroneously nceived these two corporations as composed of a number of lleges, something like a federal government; whereas, the iversities are distiuct lay corporations, which confer degrees, d have various powers; and the colleges are properly boarding- uses, and eleemosynary foundations." James I., in 1603, by ploma, dated 12th March, granted to the universities of Oxford d Cambridge the power to send each two representatives to the ouse of Commons.

The Dean and Chapter of Durham, by an act of Chapter, 28th pril, 1831, established an academical institution in Durham, in nnexion with the Cathedral Church, which, by an Act of Par- ment (2 & 3 Wm. IV.), was confirmed and endowed, as the iversity of Durham. It received its charter in 1837.

The University of London received its first charter from William IV., which Queen Victoria revoked in the first year of her reign, and granted a new one in December, 1837, which revoked the former, and several of its details were modified. Its objects are stated to be "the advancement of religion, the promotion of knowledge, and giving encouragement for a regular education by conferriug academical degrees. The senate consists of a chancellor, a vice-chancellor, and thirty-six fellows; and examiners grant the several degrees in arts, law, and medicine, &c. It meets in Somerset-house. With this university several colleges of the Dissenters and Roman Catholics are affiliated in England and Ireland, for the purpose of obtaining degrees. The chief of these are King's College, London, and London University College. King's College was incorporated August 14, 1829, and opened October 18, 1831, when an address was delivered by the Bishop of London. Its object is to secure to the rising generation in the metropolis and its vicinity the benefits of an economical, scientific, and religious course of instruction, according to the doctrines of the Church of England.

London University *College*, as it is now termed, obtained its charter February 11, 1826. The buildiug was commenced April 30th, 1827, and the college opened by the introductory lectures of Professor Bell, October 1, 1828 "The plan comprehends lectures, with examinations by the professor, mutual instruction among the students, and the aid of tutors in those parts of knowledge which most required to be minutely aud repeatedly impressed on the memory." The professors derive their income principally from the fees paid by their pupils. The course of instruction consists of languages, mathematics, physics, and the mental and the moral sciences, together with the law of England, history and political economy, and the various branches of knowledge which are the objects of medical education.

Scotland has five universities—Edinburgh, Glasgow, Aberdeen, and St. Andrew's, and the new college, Edinburgh, recently erected in connexion with the Free Church. In the first four the professorships are confined by tests to the members of the Established Church. Those venerable institutions, for which there have been excellent nurseries in the parochial schools and academies, scattered over the couutry, have conferred immense advantage on that nation, and largely contributed to the high character of its people for intelligence, enterprise, practical knowledge, and skill in the industrial arts. No people, in proportion to their numbers have had greater educational advantages, or turned them to better account.

Trinity College, Dubliu, generally known as the Dublin University, open to students of all demominations, but exclusive of all but Episcopalians, as to its fellowships and offices, was founded on the 5th January, 1593, the first stone being laid by Thomas Smith, Lord Mayor of Dublin. It was erected on ground, then *near* Dublin, now in the centre of it, which had belonged to the Augustine monastery of All Saints, conferred by Queen Elizabeth in 1591. There was a new charter in 1637. It was subsequently endowed richly with forfeited lands. It has a fine library, and is a noble institution; it is, however, above the reach of the middle classes, and has confined its advantages generally to the gentry. The ease of the middle classes, so long neglected in regard to academical education, has been met by the establishment of the Queen's Colleges by Sir Robert Peel, in Belfast, Cork, and Galway. The buildings are beautiful, the system of education adapted to the wants of the age, and the professorial bodies, most efficient. The first triennial visitation occurred a few weeks since, when the visitors pronounced the three institutions to be in a most satisfactory state, notwithstanding violent oppositiou from extreme parties, both Protestant and Roman Catholic. In connexion with the Irish Queen's Colleges, there has been established "the Queen's University," for the purpose of conferring degrees in the arts, medicine, &c.

The total number of universities throughout Europe is 102. According to the "American Almanac" for 1846, there were 103 colleges in the United States, 29 medical schools, some of which were connected with colleges or universities; 34 theological schools, and nine law schools. Most, if not all of these, are incorporated places, and all the colleges grant degrees. But many are of very recent date.

BERNE AND THE BERNESE.



A FLAX-SCUTCHER OF THE BERNESE OVERLAND.

Switzerland, anciently Helvetia, is bounded on the north by Alsace in France, and Swabia in Germany; on the east by the Lake of Constance, Tyrol, and Trent; on the south by Italy; and on the west by France. Its very name is suggestive of thought. The struggles of its brave and hardy people, their industry, fidelity, simplicity, and zealous attachment to the liberties of their country, furnish an interesting and instructive history. Before the year 1798 Switzerland was divided into thirteen cantons—the liberty of the people had been secured, and they had continued in the enjoyment of that liberty until they were attacked by their French neighbours at that period. In 1802 six new cantons were organised by order of the great emperor, after whose downfall new arrangements were made, and three other cantons were erected, and added to the rest. By this adjustment and division of their territories, the Swiss allies and subjects, as they were termed, have been more closely incorporated with, and united to, the old cantons, under the Helvetic confederation.



FRUIT-GATHERING IN SWITZERLAND.

Every scene in Switzerland is interesting: Chillon, backed by its mountains covered with verdure; the old town of Vevay; Clarens, serene and picturesque, so sunny and beautiful in its entire repose; Lake Leman

"with its crystal face,"

the heights of Meillerie, presenting little to distinguish them from the neighbouring rocks; the old and rugged village of Evian; Lausanne, Onchy, Geneva, Villeneuve, and the island which Byron mentions in his prisoner of Chillon:

"A little isle,
Which in my very face did smile,
The only one in view.
A small green isle, it seem'd no more,
Scarce broader than my dungeon floor,
But in it there were three tall trees."

All these scenes are interesting. They carry our thoughts into the past. Looking on the roofs and spires of Geneva, we forget its quiet toiling watchmakers, and think only of the once power-

ful sway of the dukes of Savoy—the fierce struggle for liberty—the voice of Berthelier summoning to arms, and how the patriot became the martyr. We think of how religion was then the resurrection of freedom; of Farel preaching in the council; of the popular outburst, and the stern soul of Calvin at work within those walls, accomplishing greater things than he ever anticipated. And thoughts of Switzerland, and a glance at the country, lead us to another period in the history of that land, and we think of the romantic life of Tell, with all its brilliant lights and sombre shadows, so characteristic of that early age. The music of the shepherd, the crashing of the avalanche, the torrent, the mountain, the glacier, the forest, are all suggestive.

Berne, the capital of the canton of the same name, is one of the largest and most populous towns in Switzerland. It was founded in the year 1191, by Berthold V., duke of Zahringen, who designed it as an instrument for suppressing the refractory spirit of his nobles. The emperor Frederic II., upon the death of Berthold, elevated it to the rank of an imperial city; he also bestowed upon the inhabitants many peculiar advantages, and a legislative code, which served for a long time afterwards as the basis of their civil law. By the charter, or bull, which he then bestowed, it was enacted that the council of government and magisterial officers of the city should be chosen by a general assembly of their fellow-townsmen, every one of whom, possessing a house within the town, had a vote.

At an early period in its history Berne was involved, after the custom of the middle ages, in constant broils with the feudal lords in its neighbourhood. But by a steady and vigorous defence, a reliance upon their own strength, and the most dauntless courage, its people overcame every predatory incursion; and so the republic prospered, and its governors became the rulers of a comparatively large and populous state.

In 1298 Louis, the baron of Vaud, the counts Peter of Gruyere and Rodolph of Neufebatel, brought their troops into the country. It was a strong and well-trained force, men who had seen much of warfare; but the sturdy men of Berne were not to be overcome. Under intrepid leaders they attacked the invading army; the battle was terrible, but the victory was sure; and they returned to their city and deposited eighteen of their enemies' banners in the church of St. Vincent. A military song still celebrates their triumph.

Half a century afterwards a second invasion was made, and this time the attack was more carefully preconcerted, and more vigorously undertaken. The army contained fifteen hundred knights, three thousand chevaliers of a somewhat lower rank, and more than fifteen thousand soldiers. They were commanded by the Count Gerard of Velangin. The whole power of the Austrian empire was directed against the rising state, the most sanguine could hardly anticipate anything but success to the invaders, and disaster to the invaded. The little city of Lauffen, situated within three leagues of Berne, was besieged, taken, and the inhabitants put to the sword. The Bernese having been apprised of what had occurred, demanded justice, but all attempts either to obtain redress or effect articles of peace were alike unavailing, and Rodolph of Erlach was chosen by acclamation as the leader of the citizen army. His first words inspired them with courage: "I have fought," he said, "in six campaigns, and I have seen the strongest army fly before the feeblest; good order is the great secret of victory. You are not incapable of this, you love liberty; and with you I have no fear of the enemy: I trust in God and you. You have chosen me to be your general, but I must command with an absolute power." The people promised obedience, and Erlach took the command. The army was quickly augmented by fresh arrivals; men with hearts alive to the threatening dangers, with stern determination, and invincible courage, gathered thick and fast, and beneath the broad light of the moon, on the 20th of June, 1339, the army set forth; the aged and the feeble, the wives and children of the men who formed that host, gathered on the walls, and watched their progress, till the last man was hidden in the forest depths. The battle which ensued when force met force, was decisive. The Bernese triumphed; the invading army gave way before them; the conquerors passed the night upon the field of battle, and then returned in triumph to their homes. The anniversary of that decisive victory is still kept in Berne as a solemn feast-day.

This defeat of the aggressors served to consolidate the power of the state and raise it to the first rank among the states of Western Helvetia. A few years afterwards it was admitted into the Swiss Confederation, of which it eventually became the largest and most populous Canton. Its last triumph was that of the Pays de Vaud, which was wrested from the Duke of Savoy, in 1536, in consequence of an attack made by him upon Geneva, the ally of Berne. From that time forward the various acquisitions of territory which the city had made remained peaceably annexed to it, and quietly governed by *Vaillis*, chosen from among the members of the Council, until the changes brought about by the first French revolution, and the triumphs of Napoleon Bonaparte. A French army entered the Canton in 1798, and met a brave resistance; but the government being destitute of energy and decision, the enemy penetrated to the capital, which they plundered, and from that time its supremacy, as the ruling power of the whole Canton has ceased.

The situation of Berne is remarkable. It stands upon the left bank of the rapid Aar, which sweeps in a sudden bend around three of its sides, the fourth opens towards the west, upon the neck of a little promontory, which is strongly fortified. The rocky bed of the river is much below the level of the town, and its steep craggy banks form a natural rampart. Thus, as the traveller descends the hill towards the Aar, the town of Berne stands out before him brightly; on its beautiful peninsula houses and trees, churches, and gardens, hanging above one another like the sunny terraces of Italy, all blended in harmonious confusion, while the rapid Aar sweeps proudly onward round its base, encircled in its turn by sloping banks full of the bland and pastoral character of beauty which marks its sweet vicinity.

A walk through its steep streets and cloistered colonnades is a very pleasant thing. Something of Roman majesty appears in its lofty terraces, in its massive arches, and abundance of water flowing every day, and all day long, into gigantic basins. There is little evidence of luxury to be seen. Everything has a utilitarian cast with it, you meet no splendid equipages, but many a country waggon drawn by a capital team of oxen. The most careful attention is paid to the wants and comforts of the humbler classes, and as one saunters through the street the eye is recreated by everything which indicates a happy population, well fed, well dressed, well lodged. The streets are abundantly supplied with fountains, decorated with an extensive variety of appendages, and often presenting the oddest appearances imaginable, with their "stiff warriors, grogram dames, and allegorical conundrums, which might puzzle even Spenser himself." Among the public buildings of Berne, besides the cathedral, are two large hospitals — the *Burgerspital*, or Burgher-hospital, and the *Inselspital* or Island-hospital. The town-hall is a lumbering mass of antiquity, strangely differing from the Corn Magazine, which is a large and splendid building. The Museum, the Arsenal, the Theatre, and some charitable institutions contribute to the general air of neatness and elegance which pervades the city.

The city is a specimen of the Canton; throughout the state there is the same neatness and the same elegance reissued. The roads are remarkably good, the road which leads to the city, is a superb causeway, planted with lime-trees, which in the summer season impart a delightful perfume to the air. The country is rich in every kind of verdure, its villages, with their white houses and cottages, are scattered over its extent, and a busy population everywhere gives token of prosperity.

When the winter takes possession of the high mountains, and every day descends nearer to the plains, fruit-gathering begins in the valleys. The whole country appears to the traveller as a forest of fruit trees: stretching far and wide on every side the varied tints of the ripening fruit attract the eye, the heavy-laden boughs bend down beneath their burden, and everywhere busy hands are hard at work gathering in the harvest. Many a happy group, in the strange costume of the country, the broad hat so characteristic of Switzerland, the merry voice of childhood, and the cheerful song add beauty and interest to the scene.

Until the French became connected with Switzerland the fruit

of that country was but little cultivated; the wild apple, and the cherries of the wood occupied the place where now the most magnificent trees are carefully tended, and their productions assiduously cultivated. When the Swiss became aware of the secret resources of their country, they discovered that there were certain localities better adapted for the growth of fruit than others; and the wild productions of the country, the cherries of Montreal, the apples of Berne, the chestnuts of Monthey, and the plums and prunes of Bâle, became fruits highly esteemed in France and in the neighbouring countries.

M. Laine established at his domain in Malley, about half a league from Lausanne, a seed plot or nursery, in which for twenty years he cultivated the productions of the country with peculiar facility and great success. His estate contained some of the finest trees, and was well supplied with water, which contributed to the luxuriance of the vegetation. It was remarkable for the numerous and beautiful specimens which it afforded of what might be made of the wild fruits, and wild flowers of Switzerland. M. Laine was the first successful promoter of agriculture in that land of mountain heights and deep beautiful valleys, and his memory is still cherished by its people.

The fruit harvest is a season of festivity. A gay cavalcade sets forth from village homes, and upon arriving at their place of destination, the horses and oxen are turned into the pastures, and the gatherers begin their work. They generally commence in the month of October, the finest month in the year, and the young, the old, the children, all are engaged, all happy, and the romantic scenery, the tall trees, the transparent lake, the gray mountains, the clear sky, afford a charming spectacle. Some of the most beautiful fruit is preserved throughout the year until the next fruit-gathering.

"HOME"—"MY HOME!"

"There blend the ties that strengthen
Our hearts in hours of grief,
The silver links that lengthen
Joy's visits when most brief!
Then, dost thou sigh for pleasure?
Oh! do not widely roam!
But seek that hidden treasure
At *home*—DEAR HOME!"

BERNARD BARTON.

My Home! This is the soothing word that calms the mind under all the various anxieties, mortifications, and disappointments we meet with, day after day, in the busy world. This is the idea that enables us to support the most trying vexations and troubles—it is an antidote almost for every evil.

"My Home!"—There is a deliciously restful, quiet token about the word. It presents heavenly ideas of soft ease, and gentle repose to the oppressed mind and languid body—ideas of quiet seclusion, where one's powers and faculties may be relaxed, and be at rest. The idea of "home" is perhaps the only one which preserves an equal influence over us through all the different periods of life.

The *weary child* that draws slowly its little tender feet, one after the other, or endeavours to keep up with "dear papa," who has taken it out for a long walk, looks up in his face with brightening eyes, as he says, "Never mind, we shall soon be *home* now." Its tiny fingers take a firmer grasp of the supporting hand of its father, and its poor drooping head half erects, as it thinks of the kind mother who will receive it with words of sympathy for its fatigue, seat it in her lap, lay its face on her cherishing bosom with comforting expressions, and chafe its aching limbs with her soft palms.

The *school-boy* or *school-girl*, when holiday-time comes—with what anxiety do they not look forward to the time of the chaise's arrival, which is to take them "home!" They both think of the approaching happy meeting with all their affectionate family—the encouraging smile of the proud father—the overwhelming kisses of the fond mother—the vociferous welcomes of the delighted brothers and sisters. Visions of well-merited praise bestowed on the different exhibitions of the neatly-executed copy-book; the careful drawings; the correctly-worked sums (with tremendously long phalanxes of figures); the well-recited Latin lines, or French sentences; and the "horribly-hard" translation, pass before *his* mind. *She* anticipates the admiration that will be elicited by the display of certain beautiful needlework, or crochet, or lace, which (at the expense of shape and eyesight) is perhaps brought to such perfection as to rival the finest "Brussels."

The *man of daily occupation*, while busily employed, thinks of going "home" after the fatigues of the day with ecstasy. He knows that on his return he shall find an affectionate face to welcome him,—a warm snug room, a bright fire, a clean hearth, the tea-things laid, the sofa wheeled round on the rug, and, in a few minutes after his entrance, his wife sitting by his side, consoling him in his vexations, aiding him in his plans for the future, or participating in his joys, and smiling upon him for the good news he may have brought home for her, his children leaning over his knees to see his face with joyous eagerness, that they may coaxingly win his intercession with "dear mamma" for "only half-an-hour longer."

And *the man of toil*, has "home" no charms for him? If he has made his home what it ought to be; if he has applied his earnings, however scanty, to their legitimate uses; if he be sober, prudent, thrifty; home will be to him a place of rest, of quiet, of attraction. To him "home will be home, though 'tis never so homely." His furniture may be rude and scant, his food may be coarse; but the welcome greetings of his wife, and the smiles of his children will make amends for all, and he will eat his morsel with a relish which many an inhabitant of the splendid mansion or the gorgeous palace rarely enjoys.

These are bright pictures. But there are those in the world who never know the luxury of home. *Some have no home.* Wretched outcasts, or vagrants, they wander from place to place, not knowing where they shall get their next meal, or where they shall rest their weary limbs at night. Others have a habitation, but no home,—no place of comfort or enjoyment. These are the children of *misfortune*, or the children of *crime*. Afflictions which they could not avert may have stripped them bare, and laid them low, and caused them to drink the bitter cup of sorrow; or, by their own wilful neglect and wanton profligacy, they may have robbed their homes of everything which could administer comfort or contribute to happiness. Bitter must be the reflections of that man who knows that if he had properly employed the earnings of his industry, his habitation might have been "the loved abode of peace and plenty," but that, instead thereof, he has taken them to places where he has received in exchange those fiery compounds which injure the body and the mind, which induce idleness and reckless unconcern, which bring in their train poverty, rags, and wretchedness; and which convert the man who should be the affectionate husband and the considerate parent, into a tyrant whose presence is dreaded, and whose whole example is pernicious and destructive.

Who can calculate the amount of moral evil traceable to the remediless discomforts of many a workman's home? There are habitations, as every housewife well knows, which no labour or pains can make healthy or comfortable. Scanty space—defective drainage and ventilation—and the total want of architectural arrangement, can scarcely fail, in process of time, to reduce the best of managers to negligence and despair. That will be a happy time for our operatives, when they are able to exchange the stifling courts and alleys of the town for cottages and cottage gardens in the suburbs.

Honoured then be the men who are instrumental in increasing the number of happy homes! Whether by the spread of knowledge, or the inculcation of moral principles, they promote habits of sobriety, industry, order, and good management; blessed shall they be in the testimony of a good conscience, and in the grateful acknowledgments of those who, by their precepts and example, have been brought to the enjoyment of life's greatest bliss, A HAPPY HOME!

Home!—scene of tenderly cherished infancy—of youthful buoyancy, brilliant with joyous and hopeful feelings—of matured and exquisite happiness—of all our best feelings—towards thee does my heart ever yearn in constant and grateful affection!

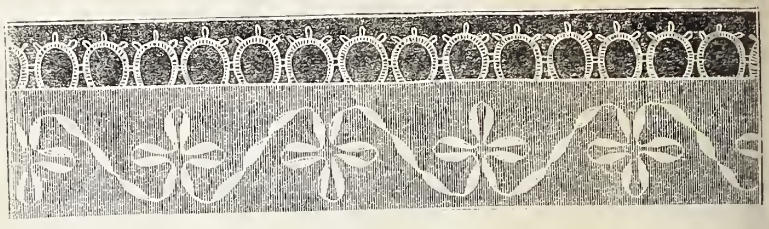
THE LADIES' DEPARTMENT.

VICTORIA LACE CHEMISETTE AND EDGING.

MATERIALS.—Three-quarters of a yard of Brussels net, 3 knots of Victoria braid, No. 3, and Tatting Cotton, No. 3.

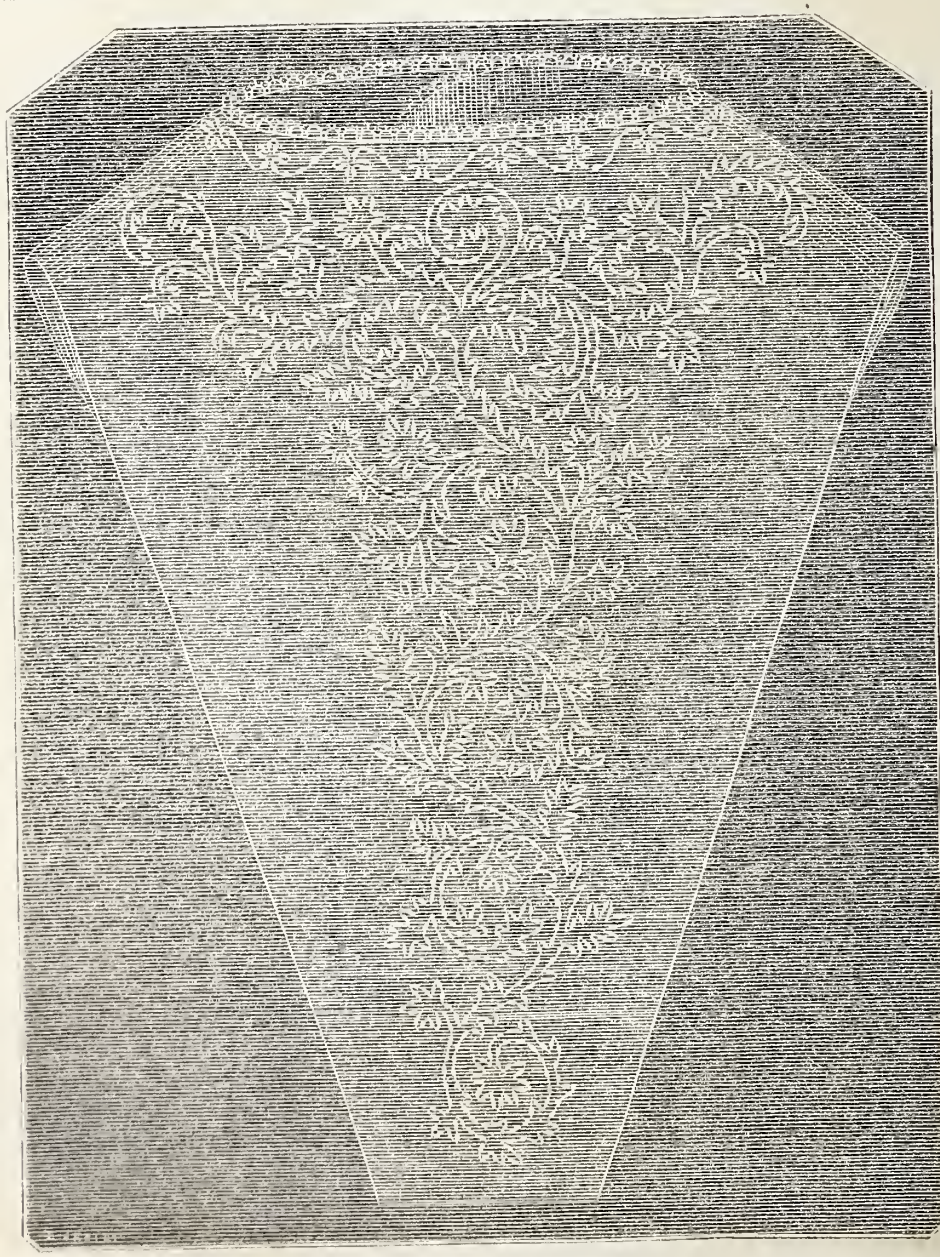
Cut out the chemisette, allowing ample margins for hems, &c. The chemisette is to fasten behind, and is best made without any joins on the shoulders, a piece being run on the straight way, for the hems, at the back.

Braiding with Victoria braid is usually done entirely by the eye, but if desirable the pattern may be drawn on coloured paper and laid under the net. The stitches must be taken over the thin parts of the braid, and *through* the thicker parts. At the beginning and ending of the braid, draw a bit of the thin part through the net, and sew it down neatly. The whole front of the chemisette should be worked in one continuous line. If every thick part in the engraving is allowed to be as long as the thick part of the braid, the pattern will be worked the proper size. Begin at the centre of the upper part, close to the neck. When the front is done, the narrow pattern going completely round the neck, must also be worked. A section of it is given the full size



EDGING TO CHEMISETTE.

of the braid. The edge of the net must be whipped, and the tatted edging sewed on.



VICTORIA LACE CHEMISETTE.

THE TATTING.—1st loop: 9 double stitches, 1 picot, 3 double, 1 picot, 3 double, 1 picot, 4 double, 1 picot, 5 double.

2nd, and all following loops: 5 double, join, 4 double 1

picot, 3 double, 1 picot, 3 double, 1 picot, 4 double, 1 picot, 5 double.

A frill round the neck of the chemisette is sometimes very becoming. Quilling net, about 1½ inch wide, and a yard long, should be worked with the braid at the edge, as seen in our engraving, and then finished with Tatting. It is sewed on rather full.

The same design is extremely pretty for frills for the new bishop sleeve.



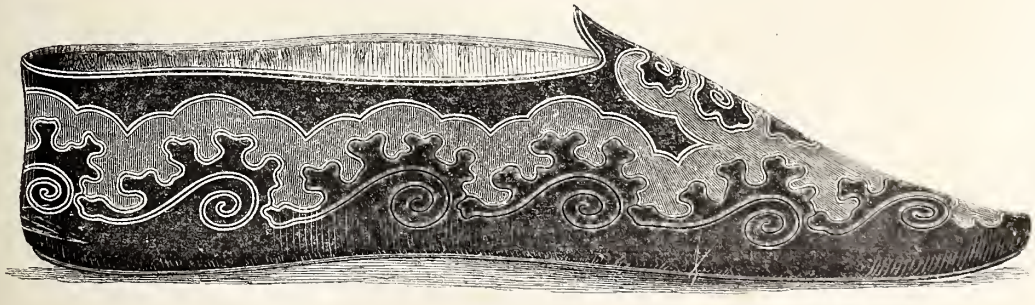
PATTERN OF SLIPPER.

SLIPPER IN APPLICATION.

Materials.—Half a yard of the finest black cloth; nearly the same quantity of scarlet or crimson velvet. Gold thread of the finest quality, 2 skeins, and fancy cord of the colour of the velvet.

Cut out of a sheet of foolscap paper the exact size required for the slipper; lay this on the cloth, and mark the outlines of the slippers with white thread. Then draw the pattern, enlarging it to the required size, according to the directions already given for enlarging designs.

Draw only one half of the slipper, and mark the other half from it. The parts engraved in white horizontal lines are to be in velvet, which is cut out in the proper shape, that for each slipper being in one entire piece.



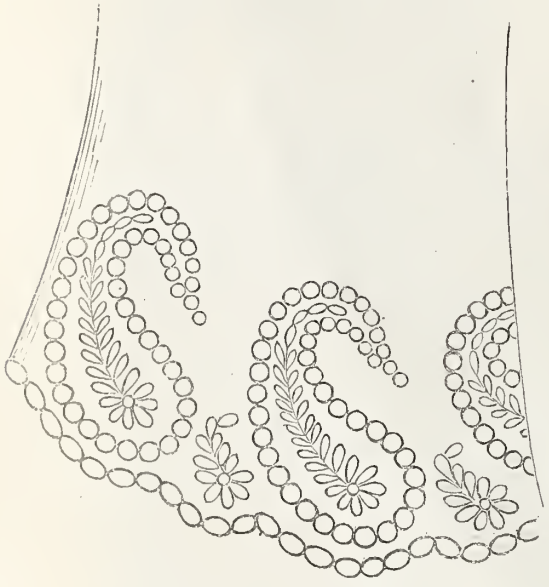
Take a broad paint-brush, and wash over the back of the velvet

lightly with very thin glue, then lay it on the cloth, and tack it to keep it in its place. Lay it, with the velvet side downwards, on a thickly folded cloth, and put some books on it as weights, until the velvet and cloth adhere. The velvet chosen should be of the best description, with a very short pile. If at all crushed, a warm iron may be held upright and the back of the cloth passed lightly over it. This will raise the pile. The edges of the velvet are finished off with two lines of gold thread, between which the fancy cord is laid. They are respectively to be sewed over with silk of the same colours, and the ends drawn through the cloth. Quilted silk or satin should be used for lining these slippers.

MANDARIN SLEEVE, IN BRODERIE ANGLAISE.

Materials.—Half a yard of French muslin, and some very fine knitting-cottou.

Broderie Anglaise is the name given to the heavy open work which has, for the last twelve months, been so fashionable for the morning toilette. It is the simplest sort of ornamental work, requiring no fancy stitches whatever, the whole of the pattern being sewed over except the extreme edge, which is worked in buttonhole stitch.



BRODERIE SLEEVE.

The material most in use for sleeves is called French muslin. It is thicker and closer than jaconet, almost approaching very fine long-cloth in its texture. The sleeve being cut out, allowing a very ample margin, the pattern is marked on it with a solution of stone-blue and thin gum-water. The design is always extremely simple, and formed by a succession of graduated holes, which are not, however, cut out until they are worked. The small ones are formed by piercing them with a stiletto; the large ones have a small bit of muslin cut out of the centre, with fine scissors. In oblong holes a piece of a corresponding shape should be cut out. The pine being, just now, the most fashionable form for every sort of ornament, I have selected it for the present sleeve. Begin to work the holes at the point of the pine, piercing one, and sewing it closely round before making the next. The needle is slipped from one to another on the wrong side; and in doing this take care to begin sewing round a hole at the side nearest the *following*, not the preceding one, to prevent the thread from being visible.

The edge is run in outline before being covered with buttonhole stitch; the scallops sometimes are graduated.

Habit-shirts and collars in Broderie Anglaise are done in a lighter muslin, and common sewing-cotton is the material used for working them, except the edge, for which fine embroidery-cotton is preferable.

ON ORNAMENTAL DESIGN.

It is easy to understand how, in order that he may become a good painter, an artist ought to study, not merely the particular branch to which he may choose to addict himself, but every branch that is likely to have even the remotest influence upon the objects he thinks proper to represent. Thus an historical painter ought to be acquainted with architecture and landscape, as well as anatomy and drapery; and a landscape painter will never embellish his productions as they ought to be embellished, unless he can put in a few good figures and some good cattle. It may not, however, appear so evident that a silk manufacturer, or a calico printer, ought to study anatomy, botany, landscape, sculpture, architecture, painting, and engraving. Yet we have before us an extract from an address by J. A. Hammersley, Esq., the Principal of the Manchester Government School of Design, in which the importance, if not the necessity, of such studies, is made apparent. Narrating a visit which he paid to the Lyonese School of Design, at the time preparations were making for the Great Exhibition of 1851, he says,—

"When I got to Lyons, I did not see a single evidence of anything like silk design. I asked the director, who was showing me round, upon what principle the school was conducted. He replied, 'We teach in this way: we teach the pupils how to understand things.' 'But in this town,' I said, 'you manufacture silk; how do you educate your silk designers?' He took me to a table, and showed me a list of arrangements. 'In the first place,' he replied, 'we have a professor of *Anatomy*.' 'Well, anatomy upon silk certainly appears singular,' and I made that remark to him. The answer he gave me was, 'There is a fine sense of proportion generated in the human mind by the study of anatomy, and the students obtain this fine sense of proportion by studying the marvellous anatomy of the human frame. There is the principle of anatomy. 'Then,' he said, 'there is a professor of *Botany*.' There is a more obvious relation in botany as applied to design, than in anatomy. 'We have a professor of botany, then—a man who not only teaches how to draw flowers, but their construction and thorough analysis—the calix, the petals, the stamen,—because the designer sometimes wants only the calix, sometimes the petals, and sometimes the stamen or the pistil. The professor tells you the whole principle of botany, and teaches you the beautiful construction of plants before he teaches you how to draw at all.' This professor takes his pupils into the Botanical Gardens of Lyons, about two miles distant from the schools; and to see him going with the students to study the construction of flowers in those gardens, was no small gratification to me, nor would be to you. He does not then see the poverty of cut or dried plants, but the vital reality of things. There are more suggestions for the textile designer in one foot of luxuriant wild herbage than in a dozen well-trimmed parterres. 'Then,' said my conductor, 'we have a professor of *Landscape*.' What has that to do with silks? I asked. He replied, 'The landscape student, if he be a right man, goes into the *abandon* of nature, which gives him a warmth that he could not otherwise obtain." Then, there was a professor of *Ornament*. I said, 'I don't see any appearance of ornamental drawing.' I was answered, 'The professor of ornament has a room to himself; he takes a boy into it, and says, 'It is no use telling you how to draw correct ornament; but I will teach you what correct ornament means: I will teach you certain radical forms in Greek ornament that shall enable you to design to eternity, because you will know Greek ornament by heart.'' And so with regard to other styles of ornament. The next professor was a professor of *Sculpture*. I said, that was not much wanted for silk. 'No;' was the reply, 'but we have workers in relief, and it behoves the master to teach modelling, and not only to teach the manipulation of modelling, but the whole science of art in projection.' Besides the above there is a professor of *Engraving*, who teaches the science of rendering the laws of colour, and light and shadow, in the different medium of mere black and white. Then there is a professor of *Painting*, who carries the pupil through the complex laws of colour, instructing him in all the beautiful results of judicious opposition, or of exquisite harmony. Then there is a professor to teach everything

about *Architecture*. After him, an elementary master, and a professor of *Geometry* and *Perspective*. Besides these professors, there is a principal of the school, who, in his own person, unites the artist and the universal man of taste, with capacities eminently suited to the managerial duties of conducting so important an institution.

"The Lyonese school has a fund of £2,500 a year, besides the ground and building, together with the museum and the many other advantages which I have named. As an instance of the great power of the designers in Lyons, I may give a circumstance which came immediately under my own eye. I was in a room where there were several designers, all of whom had been previously educated at the School of Design, and were, indeed, members of it at the time of my visit. I was remarking to a manufacturer who was with me upon the great celerity with which one of the designers produced his own ideas. His movements were as rapid and as certain as the ordinary movements of the pen in writing. The gentleman to whom I spoke desired me to request from the designer a correct delineation of any flower which might occur to me; this I did, and not only did I have it immediately from his well-stocked memory, but I got a dozen of each for which I asked, drawn in every possible position, and in every stage of growth."

The importance of such a comprehensive course of study is now, we are happy to perceive, beginning to be felt in this country; so that, in the course of a few years we shall no longer be able to say, as Sterne says in the opening sentence of his *Sentimental Journey*,—"They order this matter better in France."

STUDY OF THE FINE ARTS IN ITALY.

The Alban hills abound in as pretty bits of the picturesque as a painter's eye need look upon. Indeed, independently of the works of art with which this country overflows, the splendid light, the depth and richness of tint, the clearness with which the outline of objects is traced, and the accuracy with which the eye at a glance can define their relative distance—all resulting from the singular transparency of the atmosphere—combine to make Italy the true volume for an artist to study. Of a truth, nature executes her light and shade with exquisite skill. Here is no obscurity, no faintness, no mist, no haziness, no mingling, confounding, or blending together of objects; everything stands out decidedly and boldly, and in its own individual character, distinct in outline, in form, colour, and position. Then, if the painter wishes to rise a step in the dignity of the subject he chooses for his pencil, and, instead of the inanimate works of nature, transfer to his canvass living specimens thereof; here are faces, of the women especially, faultless in the estimation of criticism.

Much has been said about Italian beauty: it is a theme on which the pen of poets, the brush of painters, and the chisel of the sculptor have rejoiced to dwell; and it is a subject capable of furnishing no scanty materials to all the three. Yet the style of beauty is very different from that on which the notion is founded in England. That life and animation which, in England, are in general the result of health, and without which there can be nothing like beauty, are in Italy produced by expressiveness of countenance and intelligence of the eye. What is written on the *cheek* in the north, is inscribed on the eye in Italy.

THE LAMMER-GEYER.

The eagles are the largest, the most powerful, and the most destructive of the falcon tribes. Upwards of a hundred and fifty alleged species have been described, but not a few of these are mere varieties, resulting from age, sex, or climate. The eye is large and fiery, and meets with unquenched lustre the blaze of the meridian sun, while in ordinary circumstances the sight of the eagle is clear and piercing. Few of the species assume the adult plumage until three or four years of age. Every attitude indicates power and resolution. They appear in its calm and statue-like posture of repose, in its soaring and majestic flight, and in its fatal swoop, alike impetuous and irresistible.

So many qualities usually considered noble are combined in the eagle, that he was called by the ancients the "Celestial Bird," and, in their mythology, was the messenger of Jupiter and the bearer of his thunderbolts. Its figure in gold or silver at the end of a spear, was the military ensign of the Romans and Persians. Their example has been followed by modern potentates; and in heraldry the figure of the eagle has been adopted as the symbol of power.

The great eagle, though nowhere a common bird, is very extensively diffused over the world, being found in the mountainous regions of Europe, in various parts of Asia, and in the Atlas chain of Africa, while it is found, though more than ordinarily rare, in North America. It likewise appears in the mountains of Great Britain and Ireland.

The great strength of the eagle lies chiefly its beak, talons, and wings. A man has been even struck dead on the spot by a single stroke of an eagle's wing. So high is his flight, that the bird often ceases to be discernible by the human eye; but even at this distance, its cry, which has been compared to the barking of a small dog, can still be heard. Such is the acuteness of its sight, that when too high in the air to be visible to man, it can mark out a hare, or even a smaller animal, that may be on the ground, and darts upon it with an unerring aim.

All the proper eagles dislike carrion, in which they are distinguished from the vultures. They like no prey but that which they capture for themselves, and they devour it while it is fresh. Usually they carry their prey to the eyrie, and their devour it. They are capable of carrying animals almost as heavy as themselves to the distance of many miles. But when they have killed a calf or a deer, they generally satiate themselves on the spot, and carry away choice pieces only to their young. The different species vary in their food. Some pounce on fish; others confine themselves to reptiles and insects; while some prey on the smaller quadrupeds and birds. It is said they never drink water, and it is certain they can dispense with it for a great length of time. Yet, when it is presented to them, they plunge and bathe in it, and even drink it like other birds.

Our engraving presents a vivid and striking picture of the Lammer-geyer, or Bearded Eagle. Thinly scattered throughout all the great chains of Europe, as well as Asia and Africa, it is the terror of the flocks that graze on the declivities, or among the secluded valleys beneath. It habitually preys on the chamois, the wild goat, the Alpine hare, the marmot, and the lamb. It is from the latter animal being the frequent victim of this bird, that the Swiss peasants call it the Lammer-geyer, literally, the Lamb Vulture; but they sometimes extend the name to other large birds of prey.

Sailing in the air above the snow-clad summits of the stupendous Alps, it usually watches till the unwary chamois approaches the edge of a precipice, or traverses the pass of a narrow ledge, and then, sudden and impetuous as the avalanche of its native regions, it rushes down, hurling its victim into the abyss beneath, when, after making a few proud gyrations, as if to delight itself in its success, it plunges down to gorge itself on the yet quivering flesh.

These birds, forming their nests in the clefts of rocks inaccessible to man, in the highest parts of the great chain of the Alps, that separates Switzerland from Italy, have given rise to many tales which are unquestionably fabulous. It is even currently said and believed among the peasants in those regions, to have carried off children to its nest; but such a catastrophe is barely possible.

One of these birds was seen by Bruce, the celebrated traveller, not far from Gondar, the capital of Abyssinia. He says that the inhabitants of that city call it *Abou Duch'n*, or Father Longbeard, from the tuft that grows beneath its beak. From wing to wing it measured eight feet four inches; and, when dead, from the tip of its tail to the point of its beak, four feet seven inches.

It weighed twenty-two pounds, and was very full of flesh. Its legs were very short, but the thighs extremely muscular. Its eyes were remarkably small, the aperture being scarcely half an inch. The crown of the head was bald, as was also the front, where the bill and skull joined.

This noble bird was not an object of chase or pursuit, nor was it brought within reach by any stratagem. While the servants of the traveller were on the highest top of the mountain Lamalmon, refreshing themselves after its toilsome and rugged ascent, and enjoying the pleasure of a most delightful climate, eating their dinner in the open air, and having before them several large dishes of boiled goat's flesh, this Lammer-geyer suddenly appeared, not stooping gradually, from a height, but flying slowly along the ground, and sitting down close to the meat, within the ring the men had made round it.

A great shout, or rather cry of distress, called Bruce to the place. "I saw," he says, "the eagle stand for a minute, as if to recollect himself; while the servants ran for their lances and shields. I walked up as near to him as I had time to do. His attention was fully fixed upon the flesh. I saw him put his foot into the pan, where there was a large piece in water, prepared for boiling; but feeling the smart, which he had not expected, he withdrew it, and forsook the piece that he held.

"There were two large pieces, a leg and a shoulder, lying on a wooden platter; into these he thrust both his claws, and carried them off; but I thought that he still looked wistfully at the large piece which remained in the warm water. Away he went slowly along the ground, as he had come. The face of the cliff over which criminals are thrown, took him from our sight. The Mahometans that drove the asses, were much alarmed, and assured me of his return. My servants, on the other hand, very unwillingly expected him, and thought that he had already more than his share."

A few minutes only passed, and he returned, but only to perish. "I shot him," Bruce says, "with the ball of a rifle-gun, through the middle of his body, about two inches below the wing, so that he lay down upon the grass without a single flutter."



THE LAMMER-GEYER.

THE PARK OF BRUSSELS.



RUSSELS is the chief city of the kingdom of Belgium. Various ›inions have been entertained respecting its name; by some it is ›rived from *Broekselen*, bridge on the Senne, or *Brockselle*, ›apel near the bridge, whilst others derive it from *Bruysel*, a ›st of swans, on account of the number of those birds which ›re formerly found in the adjacent marshes; according to the ›alloons the name is obtained from *Brouissailles*, bushes or ambles, the spot being formerly covered with wood. Nothing ›rtain, however, is known of its etymology, though many ›asons have been adduced in favour of each of these opinions.

In the seventh century the town had no existence, and it appears to have originated in a little island of the river Senne. Charles, brother to Lothario, king of France, chose this place as his residence, and in 980 erected a castle in one of the islands of the river Senne, in which he continued to reside till 991, when he quitted it with the intention of dethroning Hugh Capet, the usurper of the French throne. He was, however, made prisoner, and died in captivity. Historians tell us how his daughter, Gerberge, inheriting the country, married Lambert, the Count of Louvain, so that the two countries became the property of one master; how in 1012 Lambert commenced the erection of a beautiful church at Brussels, and how the body of St. Gedule was

there deposited and became henceforth its patron saint; how in 1040 Lambert Balderic succeeded to the throne, how he enclosed the city with walls and strong towers, so that to him it is indebted for its rank as a town; how during the twelfth century it increased so much in consequence of the number of strangers drawn there by the manufacture of cloth, that it began to rival the neighbouring town of Ghent, and how it was also famous for its coats of mail; how in 1553 it witnessed the assembly of seven crowned heads, who were entertained by Charles V. under a large tree in the forest of Soigny; how it many times became a refuge city to outcast sovereigns—to the Duke of Lorraine in 1649—to Christiana of Sweden in 1654—to the second English Charles, and later still to James the second; how in 1695 Brussels was bombarded by the French, under Marshal Villeroy, in the vain hope of making William III. of England raise the siege of Namur; how in 1706 the Duke of Marlborough entered the place at the head of his victorious army; how in 1717 Peter the Great visited the city; how after the battle of Fontenoy the Duke of Cumberland retired to Brussels, and was followed by the French, who captured the city after a siege of twenty days; how during the war which succeeded the first French revolution, the city was taken possession of by the French; how after the fall of Napoleon the low countries were formed into a kingdom, of which William of Nassau was the first king; how in 1830 Brussels became the scene of another revolution, the inhabitants rising against the Dutch troops who garrisoned the city, and after several days' fighting succeeded in expelling them; how the result was that Belgium was separated from Holland and made a separate kingdom; and how, after all this fighting and struggling, a Great Peace Congress was held there in 1848.

Brussels contains about 15,000 houses—the greater part of which are built of brick, covered with plaster which requires constant recolouring. This is done with an argillaceous earth, of a light green hue, found near Namur, which produces a very pleasing appearance. With the exception of the modern houses near the park, the houses are built on no uniform plan—those of the first class, having in front from ten to fourteen plate-glass windows on each floor, are frequently found in secondary streets, and even in lanes; and in the best streets large and beautiful mansions adjoin houses of a very inferior description. The principal shops are in the streets between the Grande Place and the Place Royal. The stillness which pervades the streets at night forms a singular contrast to the bustle of London at the same period: the shops are usually shut, even in winter, at dusk; and by eight o'clock in winter and ten in summer scarcely an individual is to be seen in the streets.

The Grande Place, or Market Place, situated nearly in the centre of Brussels, is distinguished by its antiquity as well as by the architectural majesty and variety of the buildings which surround it. Nearly the whole of one side of the square is occupied by the Town-hall. Opposite to this lofty structure are several large houses, amongst which is the Maison du Roi, or Bread House, formerly used as a Town-hall. Pope Innocent II., and St. Bernard de Clairvaux were there entertained in 1131. No less than seven streets diverge from this square. There the fairs are held and the public executions take place.

The cathedral of St. Gedule is the principal church in Brussels; it was founded in 1010. The present building was commenced in 1226, but not finished till 1273. It is an elegant edifice of Gothic architecture, built in the form of a cross. The front is richly ornamented with sculpture, and flanked by two lofty towers.

Brussels is situated partly on a hill, and partly in a vale on the banks of the little river Senne. The city is built in the form of a pear, the stalk of which is formed by the suburb outside the gate of Halle. Its greatest length from the Laeken gate to the Halle gate is about a mile and a half; and its greatest breadth from the Louvain gate to the Flanders gate about a mile. The ancient portion of the city is built partly on the hill-side and partly in the plain. The modern part, consisting of the park and the adjacent streets, occupies a flat surface at the top of the eminence. The streets in the former are narrow and irregular, and have no pavement for foot-passengers; the carriage-way is laid with hard granite stone, and is very disagreeable to walk upon. Those in the latter are spacious and airy, and may vie in grandeu with many at the west end of London. They are all lighted with gas, which was first used in 1819. Mrs. Trollope says,—"N contrast in style and effect can be more perfect than that betwee the upper and lower town. The former is airy, gay, brilliant and entirely modern; the latter close, dark, sombre, and vene rable."

The Park of Brussels, situated in the interior of the city, nea the eastern boulevard, and entered by the gates of Namur an Louvain, is surrounded by four principal streets, and contains tw noble edifices—the palace of the King and the palace of th States-General. It is an agreeable promenade, designed wit taste, and wanting nothing to increase its attraction as a publi garden: cool green turf, tall trees which cast a delightful shadow limpid water, white marble statues which contrast pleasingly wit the green earth. The principal avenue, which divides the par into two parts equal in length, commences at the entrance gat opposite the palace of the States-General, and is continued to th palace of the King. It is decorated with statues of the Roma emperors, sculptured by Delvaux. Near the entrance is situate the green basin, around which are a number of walks, which a generally thronged, as this spot is considered the most beautifi in the park, commanding, as it does, a view of the two extrem ties of the enclosure, and of the two avenues which meet at th central point. Both of these avenues afford many a delightfi ramble, and the gates to which they lead are at about an equ distance from the royal palace. To the left, in a wood of beec trees, is a tent designed for the accommodation of a militar orchestra; to the right are some massive trees and thickets, a among them is erected a theatre and another place of amus ment. Further upward in the promenade, an octagon bas is placed, with a fountain which casts a pleasant coolness a about, and from this spot a beautiful view is presented of th country about the gate of Ninove, and the graceful dome of th church of Riches-Claires. Two other walks divide the breadth the park, and every point presents views as picturesque a sylvan as one could well desire. Among the statues which d cerate the park, the most prominent are the Apollo, Venus, Thet Leda; perhaps the best are the Diana and Narcissus of Gripel Charity by Vervoost, and two groups representing Agriculture a Commerce.

This beautiful garden, constructed at the expense of t Austrian government, after the design of Zinver, in 177 and given afterwards by Bonaparte to the city of Brusse who undertook to keep it in repair, occupies the place of t ancient park connected with the royal palace, and was its originally part of the forest of Soigne. The Abbé Mann, his "Ecclesiastical History, Civil and Natural, of the City Brussels and its Environs" (1785), speaks of the first park w a kind of regret.

The royal palace of Brussels, burnt in 1731, was," he sa "but little remarkable for elegance or magnificence; but t park in its ancient state, included beauties and advantages whi were hardly to be found elsewhere.* We might then have s in those glorious gardens and amphitheatres the fairest flow and the noblest trees; the grass, the flower-beds, the terra which communicated one with the other by spiral staircases. the dales and valleys there was the same character; a great nu ber of fountains and basins of water, and grottoes, a labyrinth wooden house, constructed in Spain; the whole ornamented w statues and other curious works of art. The park was not at th time a wood of lofty forest-trees peopled by wild deer, and wh the rays of the sun had no power to penetrate in the warm season of the year. At the northern part of the park, where n is maintained the hotel of the Council of Brabant, was forme the solitary mansion of Charles V., who made it his reside after his abdication, and before his departure for Spain."

In that part which the Abbé calls the valley, there was admirable statue of Mary Magdalene under a grotto of pieces rock covered with shells and marine plants, and closely situa to a fountain which arose from a granite basin. In 1717 Pete

* There exists a perspective view of the ancient park in the third volu of "The Trophies of Brabant," published in 1721.

drank from that fountain a cup of water. The author of the Magdalene, Duquesnoy, was a man of great celebrity, and one of the most ancient citizens of Brussels. In contrast with the grotto and the statue of the Magdalene, we have now the statue of a milkwoman carrying a pitcher filled with water.

The palace of the States-General was commenced in 1778, under the roof where Charles V. once dwelt; it was successively occupied by the Council of Brabant and by the Tribunal; it was set apart, in 1818, to the service of the two Chambers of the States-General. At that last-mentioned period the government confided its restoration to the architect Vandershacken. The lower compartment is decorated with eight fluted columns of the Ionic order. The cornice was reconstructed after the fire of 1820. The palace is entered by passing through a vast hall supported by Doric pillars.

The king's palace was reconstructed by the architects Suys, Stieleman, and Tasson. The front of the building is richly decorated; the ground-floor ornamented with a lofty arcade which supports a superb balcony. The colonnade is formed of Corinthian columns, with an entablature of the same order.

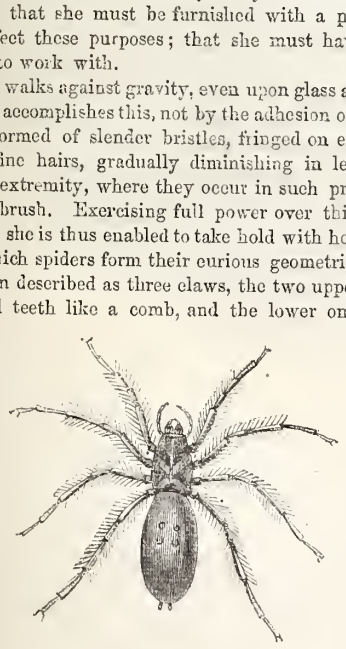
The Park of Brussels is celebrated for one great historical event of very recent date. It was with a singular disregard to national taste, prejudice, and antipathy that Belgium had been annexed to Holland by the Vienna Congress in 1815. In August, 1830, an incident which occurred in the streets of Brussels aroused the passions of the discontented, and paved the way for a more serious struggle. The Prince of Orange, the son of the Dutch king, came from Holland, proposing by his presence to appease the troubles which distracted the country; but his presence in the public streets only accelerated the outburst of popular indignation. The streets were barricaded, the citizens under arms, the tricolour waved from the church spires, and the windows of the houses, and everywhere arose the cry "*Vive la liberté!*" "*Down with Van Maanen!*" (the Dutch minister). He returned abruptly, leaving everything in a worse state than before. On the 23rd of September the Dutch troops, nine or ten thousand strong, entered Brussels late in the evening, with matches lighted and drums beating. They found every preparation for a lengthened and desperate combat. The tocsin was ringing from every steeple, and discharges of musketry were poured from the windows and barricades by an unseen foe. Losing heart they retreated to the park, and then intrenched themselves with their artillery, and for three days sustained the attacks of the Belgians, who were supported and relieved by crowds of volunteers from the neighbouring towns, while the Walloon poachers, all practised marksmen, posted in the adjacent houses, carried death into their ranks with every shot from their long guns. The royalist artillery, in the mean time, cannonaded the city incessantly, laying it, in many parts, entirely in ruins, and burying numbers of helpless women and children in the cellars in which they had sought refuge. The Dutch, however, at length retreated, carrying their dead away in carts, and leaving the park slippery with gore, and ploughed up by the shot.

The environs of Brussels are extremely fertile, and both banks of the Seune abound with rich pasturage. The forest of Soigny commences at a short distance from the city, and extends over more than 16,000 acres of ground. The trees are remarkably fine. The tree which commonly prevails in the forest, is the common beech; and elm and oak are not unfrequent. There are also ash-trees, willows, and a few small hornbeam trees. In many parts of the forest may be seen large piles of billets, prepared for being sent to Brussels as firewood, each billet being about three foot long and one foot in circumference. The woodmen live in small scattered cottages, sometimes having mud walls, and deserving only the name of huts. The forest is traversed by narrow hunting roads, and its surface is very unequal, sometimes rising into hillocks and sometimes sinking into deep glens.

THE WATER SPIDER.

Among the small things which are wise upon earth, Solomon mentions the spider; and the way by which he tells us she shows her wisdom, is by her peculiar powers:—*she takes hold with her hands.* Every one who examines the web of a common spider, whether it is formed of concentric circles, or supported by diverging rays, or whether it imitates any finely-woven substance, will be convinced that she must be furnished with a peculiar set of organs to effect these purposes; that she must have something like a hand to work with.

The spider walks against gravity, even upon glass and in a prone position, and accomplishes this, not by the adhesion of suckers, but by a brush formed of slender bristles, fringed on each side with exceedingly fine hairs, gradually diminishing in length as they approach its extremity, where they occur in such profusion as to form a thick brush. Exercising full power over this remarkable development, she is thus enabled to take hold with her hands. The organs by which spiders form their curious geometric snares have generally been described as three claws, the two uppermost armed with parallel teeth like a comb, and the lower one simple and



WATER SPIDER: ENLARGED TWO-THIRDS.

often depressed; but recent discoveries have revealed to us the fact that even the common garden-spider has eight claws, seven of which have their lower side toothed. The object of this complex apparatus of claws, simple and pectinated, is to enable these animals to take hold of any thread; to guide it; to pull it; to draw it out; to ascertain the nature of anything insnared, whether it be animate or inanimate; and to suspend itself. In fact, the Creator has made these claws not only hands but eyes to these animals.

These wonderfully-constructed creatures are almost universally under observation. We see them fabricating their snares, or lying in wait for their prey; in our houses, in the fields, on the trees, shrubs, flowers, on the grass and in the earth; now still and quiet as though they had no power of motion, then ascending into the air, borne by slender fibres, to an immense height.

Some species of spiders are gifted with a particular talent for building; they hollow out dens, bore galleries, elevate vaults, build subterraneous bridges, and construct also entrances to their habitations, and adapt doors to them, which want nothing but bolts; for, without exaggeration, they work upon a hinge and are fitted to a frame. These habitations are found in an argillaceous kind of red earth, in which the spiders bore tubes about three inches in depth, and ten lines in width.

The insects that frequent the waters require predacious animals to keep them within due limits, as well as those that inhabit the earth; and the Water Spider is one of the most curious upon whom that office has devolved.

The water spider is a small animal remarkable for its structure and mode of existence. It lives under the water; its abdomen is covered with a sort of down which will not permit the water to saturate the skin, and which admits a certain quantity of air for the purposes of respiration. The nest, which is under the water, is itself filled with air, and is formed of the same sort of material as that of which common spiders construct their webs. The nest is generally in the form of a bell, with an opening at the bottom, sometimes free, sometimes carefully guarded and jealously defended by a cunning network of elastic cords which would secure any insect which might attempt to enter. The size of the nest is about that of a walnut. The elastic cords which guard the entrance are arranged in every direction, and are in many places

attached to the aquatic plants which spring up beneath the water; some of them pass through the water, and their ends float upon its surface, for they have another and a greater purpose than keeping out the foe; they are each of them so formed that they are made the means of conveying fresh air to the nest. These filaments are so arranged that they secure the nest in its proper position. A transparent and glassy material covers the whole of the nest, and is spread carefully over both the outside and the inside by the diligent little insect. It is very curious to observe the spider, during this operation, moving from place to place with the greatest activity, and securing every part with the most persevering energy and determined zeal. When completed, the bell is white and clear, and looks like a beautiful pearl in the water.

In this aquatic home the animal passes nearly the whole of its time watching for its prey. The nest is filled with air, and this is accomplished by a most curious process; for the air tubes would not be sufficient for that end. The spider usually swims upon her back when her abdomen is enveloped in a bubble of air, and appears like a globe of quicksilver; with this she enters her cocoon, and displacing an equal mass of water, again ascends for a second lading, till she has sufficiently filled her house with it so as to exclude all water. Here she nourishes her young and disposes of her eggs; here she spreads her nets and watches for her prey,—a prey which by her carefully-constructed webs is easily secured.

The eggs are enveloped in a cocoon of silk; they are in colour of a yellow orange, and may easily be perceived through the white transparent nest. The young in a short period begin to build for themselves, and may be seen swimming in the still water.

The water spider every year rebuilds its nest very near the spot it has formerly occupied; it searches the water with astonishing precision, and is watchful over those water-plants in which are found the small aquatic insects which serve it for food. How these little animals can envelop their abdomen with an air bubble, and retain it till they enter their cells, is still one of nature's mysteries that have not been explained. We cannot help admiring the singular provision which enables an animal that breathes the atmospheric air to fill her house with it under the water, and which has supplied her with a secret art by which she can clothe one part of her body with air as with a garment. This is a kind of attraction and repulsion that has mocked as yet all our inquiries.



NEST OF THE WATER SPIDER.

THE GAMESTERS.

Our engraving reproduces a painting by M. Meissonier exhibited at the Louvre in 1845, under the name of *Le Corps de Garde*. The figures are those of a party of *condottiers* or *routiers*, the half-brigands, half-soldiers, who hired themselves out without discrimination to the belligerent powers of Europe during the fifteenth and sixteenth centuries, always preferring the side which gave the higher pay, but never inquiring into the merits of the quarrel. These mercenary bands were generally made up of Italians, Spaniards, and Frenchmen, but were most numerous in Italy and France. Resting against the wall, in the corner, may be seen pikes and halberds, and scattered here and there on the floor various pieces of defensive armour, hauberts, cuisses, and greaves, and in the middle of the room a group of soldiers, two of whom are playing dice upon a drumhead. This is the whole of the picture.

The subject is very simple, but M. Meissonier has succeeded in making it produce a very pleasing effect. There is great variety of expression, fineness of detail in the posture

physiognomy, and costumes of the players and the lookers on. One is encased in a cuirass, with his head bare; another has put off all his armour but his casque, and has draped himself in some sort of cloak or mantle; another has a handkerchief tied round his head like one of Falstaff's soldiers; another is dressed in the Spanish style with a knot of ribbons on his shoulders. The fifth seems rather like a Scotchman, with a cock's feather in his cap. It is curious to observe how the visage of the Spaniard lengthens as he sees his opponent place his hand in a grasping position over the stakes.

Of the three spectators, one leans phlegmatically on his cane; the second, with the helmet on his head, leans over the drum that he may better watch the progress of the play; and the third, a real philosopher, is amused at the Spaniard's want of luck. So that in this little scene each actor has his part, none of the figures are useless or out of place.

M. Meissonier has obtained a high position in French art, and his works are daily increasing in public estimation. The *Chess Party*, the *Artist in his Studio*, and *Amateur of Engravings*, have already attracted considerable attention. With close adherence to nature he combines great fineness of execution, but his love of truth is never carried into the trivial or grotesque. Louis XIV. would never say of M. Meissonier's paintings what he said of Teniers, "Take away those *magots !*"



CORPS DE GARDE. FROM A PAINTING BY MEISSONIER.

MR. T. WELCH'S TABLE-CLOTH PRINTING WORKS, MERTON, SURREY.

A short ride on the South-Western Railway, will conduct the traveller to the Wimbledon Station, the second beyond that at Vauxhall. Now dismounting from his carriage, passing through a gate which is immediately before him, and then crossing a field or two, he will arrive at another gate, and bearing to the left, on going through it, he will enter the pleasant village of Merton.

The antiquarian has been accustomed to regard it with interest, for there once existed a celebrated abbey, where Henry III. held a parliament, in 1236, at which were enacted "the Provisions of Merton," the most ancient body of laws after the grant of Magna Charta. Of this edifice there is now scarcely a relic, but the walls by which it was surrounded, included about sixty acres.

We have now, however, to do with Merton from its containing an interesting branch of modern manufacture, which will amply repay attentive consideration, conducted by Mr. T. Welch. A prize medal was obtained by that gentleman at the Great Exhibition, for his table-cloths; in the production of which he is, we believe, surpassed by no one; and as we have been permitted to inspect all the processes passed through in his establishment, we have great pleasure in describing them to our readers.

Mr. Welch is the manufacturer of four classes of table-cloths:—

I.—TABLE-CLOTHS PRINTED IN SQUARES OR OBLONGS.

II.—TABLE-CLOTHS PRINTED IN PIECES ABOUT FORTY YARDS LONG, AND CUT UP TO THE SIZE REQUIRED.

III.—TABLE-CLOTHS OF VELVET PILE, IN SQUARES OR OBLONGS.

IV.—TABLE-CLOTHS OF WHICH THE MATERIAL IS EMBOSSED.

And in this order our description will proceed.

I.—TABLE-CLOTHS PRINTED IN SQUARES OR OBLONGS.

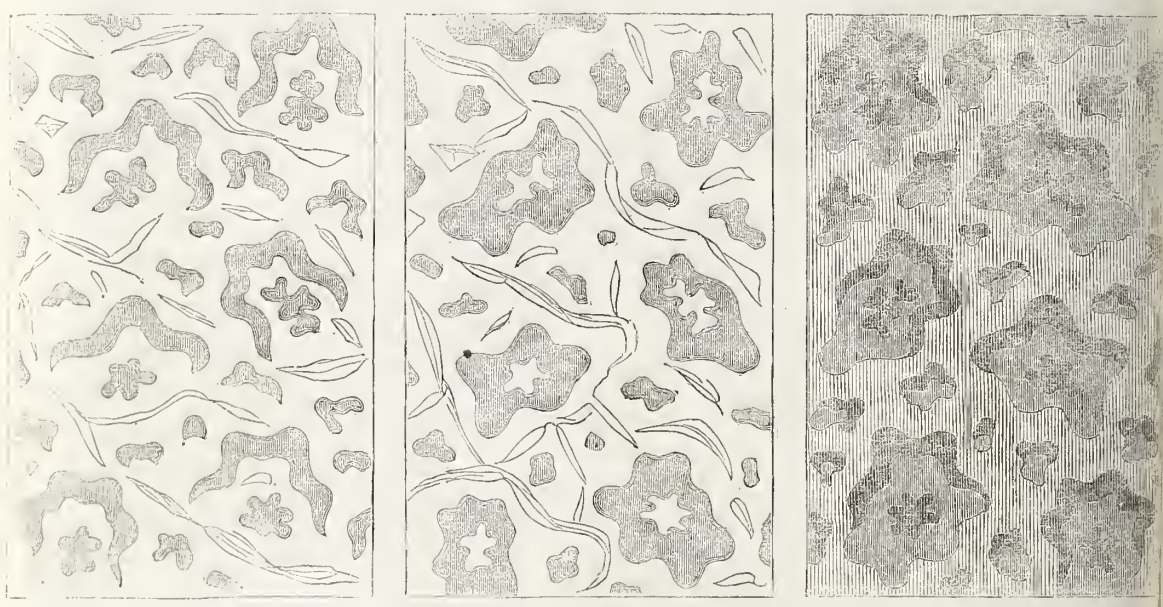
The cloth used in this manufacture, it may be premised, comes from Yorkshire in pieces, which are glossy and have a good face, but on its arrival here, these qualities are lost, from the submersion of the cloth in hot water. It has now to be prepared for the reception of colours; and here it may be remarked that there are only a few dyeing materials which impart their colour to different stuffs without any previous preparation, and these have been technically termed *substantive* colours; but by far the greater number of colouring materials only give a fugitive tint under such circumstances. To render the colours employed in dyeing permanent, that is, capable of resisting the action of the air, light, and water, a *base* or *mordant* must be used, possessing on the one hand, an affinity for the fibre of the stuff, and on the other, for the colouring material. The term mordant, from the Latin word *mordere*, to bite, originated in the notion entertained by the French writers on dyeing, that the action of such substances was merely mechanical; that they were of a corrosive or *biting* nature, serving only to open pores in the fibres of the cloth, into which the colouring matter might insinuate itself. And, though the inaccuracy of this notion was discovered, the term was continued as a proper name, without any allusion to its original signification. In the present instance, the mordant is a solution of tin, placed in large wooden vessels, often observed in dye-works; they are called *becks*, and by some workmen *backs*.

We give an illustration of one of these *becks*; it is, in fact, a huge oblong box; at the top of which a wooden skeleton cylinder is put in motion by a handle. Over the cylinder one end of the cloth is thrown, and on the man turning the handle round, each fold is lifted up and down, so that every part of the cloth is successively subjected to the due action of the solution or mordant. In our illustration, a representation also appears of a wash-wheel, which is set in motion by a large water-wheel behind. There is every facility for employing this power, as Mr. Welch's manufactory is situated on the river Wandle, so well known to "brothers of the angle." The washing forms the second process to which the cloth is subjected.

After this is passed through, the cloth is stretched out on long frames, in one large room of the manufactory, to dry. When dry, it is cut into whatever size it may be wanted, and also into whatever shape, whether square or oblong. The cloth is now stretched on a frame something like that used by artists for their canvass; but the printing takes place on the opposite side to that chosen for painting; a square rim of framework being all round. The cloth thus stretched on a frame is next placed on one of the table used for printing. The table, which is of stone, has three cover of blanket, and over this is an oil-cloth; affording by this arrange ment, the solidity and elasticity that are equally necessary.

Before, however, the following process is described, it is desir able that we should visit a room, in which are various coppers an casks suggesting the idea as we glance at a series of large, well filled pots, of a large jam manufactory. Judging only by the ey and "seeing" says the proverb, "is believing," we should be dis posed to exclaim, were we inclined to "think aloud," "there is vessel of black-currant jam, of very even consistency;" "the raspberry jam is equally apparent;" "that substance only r quires to be baked, and to be cut into the lozenge form to mak excellent jujubes;" and "what lots of 'honey drops,' or 'kisse might be produced from that more distant mass!" But here, as i many other instances, despite of the proverb, our eyes deceive us and we are looking only at the colours used in printing tabl cloths. They are principally vegetable: as cochineal, logwoo fustic, and indigo; but almost any colour may be used in th manufacture.

In this establishment there is no printing by machinery, a that is done in this way, is executed by hand, and by means



BLOCK FOR PRINTING, AND PRINTED PATTERN.

separate blocks. The blocks have faces of pear, holly, or sy more, and backs of deal. There are pins at the corners of th to ensure their being placed accurately on the cloth, so that as t blocks are successively used they may fit exactly one over other. In some of the most beautiful patterns a great numbe blocks is required. One table-cloth we saw, had no fewer th 175 blocks for its especial decoration, and many of them w repeatedly used, as the entire pattern had been produced by large number of 1018 impressions of the blocks. In anot pattern we inspected, there were 990 impressions.

But, whether there be few or many blocks, precisely the sa course is taken in their use. For when a block is duly char with colour, the printer lays it on the cloth with his right ha and beats it with his left, employing for this purpose, a he leaden hammer, called a maul, with a handle only just about l enough to come through his hand. In fact, he beats the bl with the handle of the hammer, or rather, lifts it up, and lets maul come down so as to give a jar to the block; in this way blow is much *truer*, and by striking the back of the block w wood instead of metal, the block is, of course, far more dura A very considerable blow, it should be observed, is required this cloth-printing, whereas bandana handkerchiefs are produ from blocks merely struck by the fist, and without the use of kind of hammer.

As soon as the colours are quite dry on the cloth which has

thus printed, it is taken out of the frame already described, and placed in a large steam-vat, to the full action of which it is entirely exposed. On this being completed, the cloth is taken out, and washed in the river Wandle, by means of a jenny or wheel, something like that of the dye-beck; by which process all superfluous colour is effectually removed. To fix the colours, it is then passed through a second solution of tin; it is subsequently rewashed, and placed in one of Manlove and Alliott's Hydro-Extractors, a centrifugal drying-machine, which leaves in the fabric scarcely any moisture. The cloth is now ready to be stretched out on a frame, where it becomes perfectly dry, and finally it is hot-pressed, "to bring up the face"—a descriptive technicality. In this way, then, one class of table-cloths is manufactured, but partaking of the utmost diversity in appearance, from the fabric which is so neat and sober in its hues, that it would not violate the simplicity of the primest apartment ever decked by the fair hand of the most delicate nicety, to one radiant and gorgeous with all the colours that skill and taste can throw upon it, and confessedly adapted to the sumptuously furnished chambers of one of our merchant princes, of Britain's aristocracy, or of royalty itself. We next notice the

II.—TABLE-CLOTHS PRINTED IN LONG PIECES.

The cloth that is used for this purpose comes to the establishment already dyed, whatever colour is wanted; but we believe the most common tints are green and crimson. It goes through the same course of preparation as has already been described in relation to table-cloths of the first class. There is, however, one difference in its treatment; for, instead of being cut up into pieces for printing, it is taken to a large room on the establishment, where arrangements are made for printing it entire; its length being usually about forty yards. We give an illustration of this room, in which are four tables, nine yards long, and two yards wide. Nine yards of cloth then are spread on a table to be printed, and when this process is completed, that length of cloth is hung up to dry in the manner exhibited in the engraving; while another length undergoes precisely the same process.

In this kind of printing only two colours are used; but it is astonishing to observe the richly flowing, and, in some instances, the highly artistic patterns, that are thus produced. We give an engraving of one of the simplest patterns—that known as the leopard pattern, from the spots which are formed by colour, resembling the spots observable on the skin of that animal. We add to this—that the exact process may be clearly understood—an engraving of the two blocks by which the pattern is produced. It will be seen that the opposite course is taken to the one which would ordinarily be supposed: for while most persons would imagine that the lighter colour was printed first, and the darker one afterwards, on certain places, the darker colour is actually printed first, and, instead of the lighter one being printed over it, it exactly fits it, leaving one print unaffected by the second. When there is merely a small round spot to be printed, the wood-face of the block is simply printed from; but when any considerable quantity of colour has to be used, the wood of the block is cut away and felt is substituted, leaving wood only at the edge, to give sharpness to the block; the felt imbibing a far larger quantity of colour, and printing much more evenly than wood alone. In some places, where very sharp lines are required, brass is inserted in the wood-block. Our engraving shows the wooden edge with the felt inside.

The mauls employed for this kind of printing are much larger and heavier than those used in the production of the table-cloths of the former class; and the workman who comes from the latter manufacture to the former, finds it not a little laborious. Still, he has no alternative; and so, like the man who plies the scythe or the sickle, or swings aloft the heavy hammer of the blacksmith's forge, he wields the large and weighty maul until it becomes lighter by use.

Two long pieces of cloth are calculated to furnish three days' labour for a man and a boy. The round shallow tubs containing the colours are placed on small trucks, having four wheels, which run on a species of railway, to be moved upwards or downwards as may be desirable. It is afterwards rolled on a large perforated cylinder, that it may be submitted to the action of steam, and washed and dried in the same manner as the table-cloths, previously mentioned.

We now proceed to another class,—

III.—TABLE-CLOTHS OF VELVET PILE, IN SQUARES OR OBLONGS.

These may be disposed of in very few words. The material used comes from Glasgow; it is composed of silk and wool, prepared and printed in the same way as cloths of the first class, and afterwards it is sheared. Table-cloths of this kind are as much more rich and beautiful than the preceding as carpets of velvet pile are superior to the ordinary carpets. The process of printing velvet pile is of very recent invention.

The last class now to be described is,—

IV.—TABLE-CLOTHS OF WHICH THE MATERIAL IS EMBOSSED.

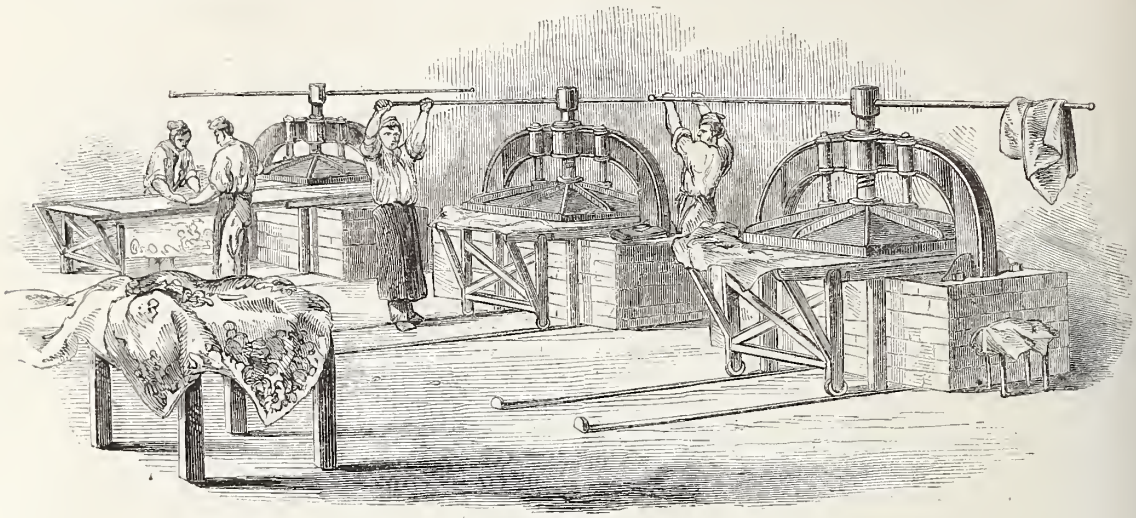
Only one process is required in this manufacture. The cloth arrives of whatever colour may be required, and after being cut up into squares of the proper size, is taken at once, without any preparation whatever, to the part of Mr. Welch's premises appropriated to embossing. As soon as the room is entered, there will be observed on a table a number of brass plates very deeply engraved, and some of them bearing on their faces most splendid patterns. Men may also be seen dabbing the colour, and that thickly, on the plates they respectively have in use; and then, with a small piece of brass about six inches long and two or three inches wide, having a piece of wood at its upper end to give them a better hold, they scrape off the colour from the smooth and bright parts of the plate, leaving it in large quantities in the indentations; and exhibit, in so doing, great dexterity. Black, crimson, blue, orange, green, in fact all the colours that can be used, are employed in these fabrics; but there is one peculiarity that distinguishes them from those employed for table-cloths of the other classes,—they are thickened with flour.

Each of the brass plates is appropriated to only one quarter of a table-cloth, and when one has been properly loaded with colour, the table is drawn out from under one of the presses, as represented in our illustration; a quarter of a table-cloth is then nicely adjusted upon it, the table is subsequently shoved under the press and screwed down very tightly by two of the workmen. The bed of the press has always been obliged to be raised to a great heat: fire was formerly employed, but more recently steam has been found as effective, while all danger of scorching is averted.

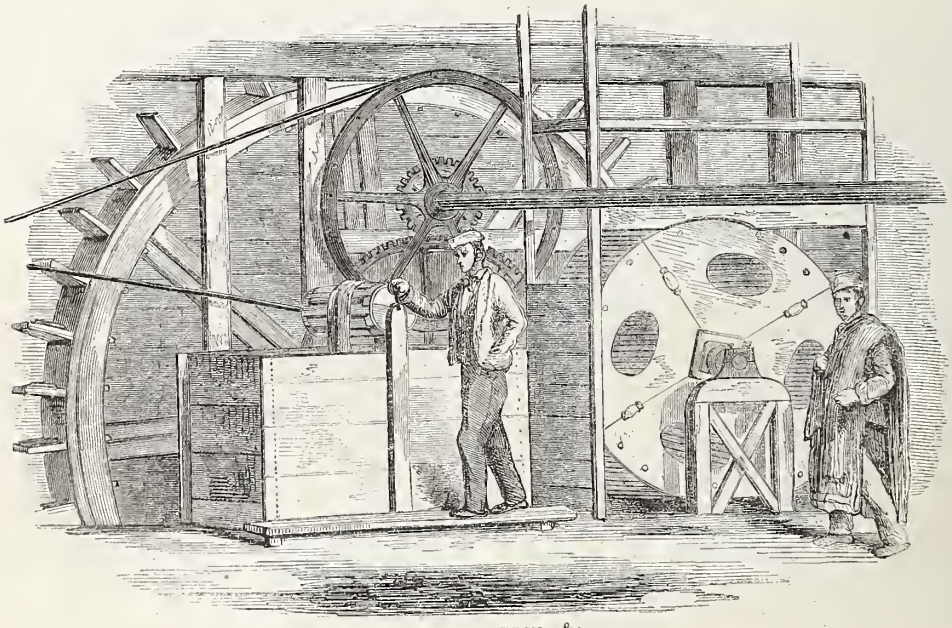
The cloth being thus kept subjected to a great degree of heat, to a large quantity of colour, and also to severe pressure for a quarter of an hour, the process is completed. On the press being unscrewed, and the table drawn out, one quarter of the cloth, previously, perhaps, a crimson, has now a black rich pattern printed on it, while the parts of the table-cloth to which the colour has been given stand out in bold relief from the plain ground of which they previously formed a part—this process even improving the portions of the cloth where the colour does not go. Great, indeed, is the metamorphosis; for the plain and unattractive-looking piece of cloth is now proportionately increased in beauty and value.

The workmen thus proceed from quarter to quarter until the whole is embossed, when the cloth is brushed with common clothes-brushes. In our illustration, the press nearest to the spectator is screwed up; the second is being screwed up; while the third has the table drawn out, and the workmen appear engaged in arranging the cloth.

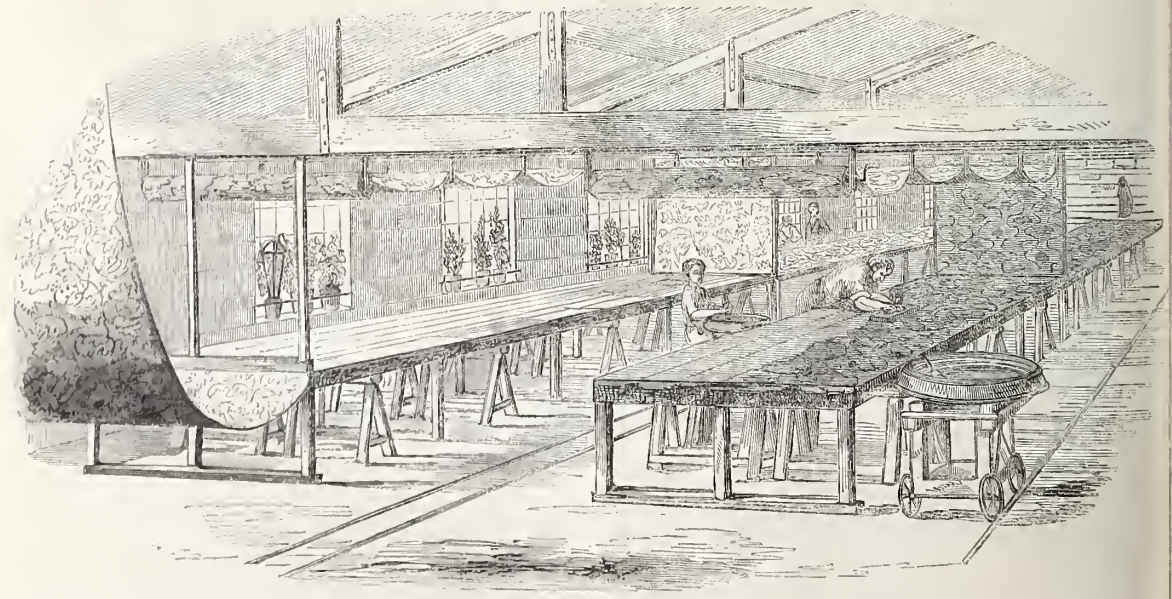
We were struck, as we presume every one must be, on paying a visit to this interesting manufactory, with the great number of plants it contains belonging to the artisans, and which are observable in different parts of the works. These plants looked exceedingly healthy; many of them, like the splendid fuchsias we noticed, were of the finest kind, and trained with great skill and judgment. They are kept well watered in rooms comfortably warm. How far a man's tastes are affected by the objects with which his employments bring him into continual contact, is an interesting question, but one which we have no space at present to discuss. It would be easy to specify employments in which the beautiful presents no attraction; strange indeed would it be were it otherwise; but it would be no less so, where, as in the present instance, forms of beauty are constantly observable, if flowers were not regarded as cheering and delightful.



EMBOSSING PRESSES.



DYE WHEEL, BECK, &c.



PRINTING BY HAND.

THE FORT OF BERTHAUME.



At the extreme point of the department, Finisterre, France, stands the famous Abbey of *St. Mathieu-fin-de-terre*. The Abbey is now in ruins, but then a lighthouse has been erected, and at a short distance is the rock on which is constructed the Fort Berthaume, designed for the defence of the opening of the passage which conducts to the city of Brest.

The rock of Berthaume is more than 400 feet in height, and is separated from the mainland by a canal of considerable width. An ancient chateau formerly occupied the site of the fort. Direct communication is kept up between the fortress and the coast, by two parallel cables, upon which a sort of car moves for the conveyance of those who visit the fort. This curious bridge existed under the empire. The cables are strong, and are changed every ten years, six persons may be conveyed across at once.

THE MIRAGE.

Amongst the striking peculiarities of high summer, is that phenomenon called a *mirage*, or reflection, as in a mirror. This is a very curious optical delusion, by which—instead of a simple perception—approximated, multiplied, and generally vertical images of an object are exhibited to the eye.

As the heat of the day increases, the land wind, which during the night is steady near the shore, when the weather is serene and settled subsides to a calm; the surface of the water in the offing becomes as smooth as glass, and the vessels "loom out," as if they were lifted into the air; masts and sails that were not before visible come in sight, without approaching any nearer in distance; and some of the air-suspended vessels throw their whole inverted reflections upon the water, as if two ships, the counterparts of each other, were suspended keel to keel, or supported on the top of the masts. Sometimes, also, a ship which is in reality wholly hidden by the convexity of the sea, will appear in the air, in an inverted position; sometimes a second ship will be formed immediately over the first, but always reversed with respect to it; and these will sometimes be in contact, sometimes at some distance from each other, and sometimes the lower ship that has the keel uppermost, will seem as if only a part of her masts and sails were above the horizon. In particular states of the atmosphere, coasts and castles, and even considerable portions of scenery, which are without the range of the sea horizon, will appear inverted in the air; and, under peculiar circumstances, those images may be found vertically as well as horizontally.

A striking instance was observed by Captain Scoresby, January 28, 1820, in the Greenland seas. The sun had shone during the day without the intervention of a cloud, and his rays had been unusually ardent. About six o'clock, P.M., a light breeze sprung up, and most of the ships navigating at the distance of ten or fifteen miles, amounting to about eighteen or nineteen sail, appeared then to undergo a change of magnitude and form; and, when examined from the mast-head with a telescope, exhibited some very extraordinary appearances, differing in almost every point of the compass. One ship had an inverted image above it; another had two distinct images in the air; a third was distorted by elongation—the masts being nearly of twice the proper height; and others underwent contraction. All the images of the ships were accompanied by a reflection of the ice, in some places in two strata.

We have already stated that though the images of the mirage are commonly vertical, there are instances in which they are horizontal or lateral,—that is, one or more images are represented on the same plane with the object. This form of the phenomenon has been observed on the Lake of Geneva by M. Provost, and, on the 17th December, 1818, by MM. Jurine and Soret, whose account may be quoted as the most distinct of the two. A bark near Bellerive was seen approaching Geneva by the left bank of the lake, and at the same time an image of the sails was seen above the water, which, instead of following the direction of the bark, separated from it, and appeared to approach Geneva by the right bank of the lake; the image moving from east to west, while the bark moved from north to south. When the image separated from the object, it was of the same dimensions as the bark, but it diminished as it receded, so that when the phenomenon ceased it was reduced one-half.

The Siraub, or "Water of the desert," is another curious form in which the mirage is presented to the eye in eastern countries. In those countries there are few travellers who do not suffer from the want of water, while traversing the desert plains of Egypt, Syria, and Persia; and it is in these districts, where the traveller is exposed to the most intense agonies of thirst, that his wants are mocked by the illusion of the mirage. When the ground resembles hot ashes, and the atmosphere is felt as the vapour of a furnace; when no river or spring has been seen for many days, and the water in the skins is exhausted, and the Arabs talk of killing the camels for the sake of the water contained in their stomachs; it is easy to imagine the delight with which the traveller perceives before him one or more lakes, reflecting on their clear surface the trees, the hills, and other surrounding objects, by which the uniformity of such a plain may be broken. He puts his beasts to speed, but soon finds, to his great astonishment, that he cannot reach the water for which he longs with as great a longing as that with which "the hart panteth for the water-brooks." The shore of the lake recedes as he approaches; as he proceeds, it disappears, and is frequently formed anew at a distance beyond him. If he be an intelligent person, he may, at length identify the appearance with what he has heard of the siraub, but the most attentive consideration will not enable him to detect, in the exhibition, any circumstances different from those which would be presented by real water.

Local circumstances sometimes contribute to give more striking effect to the illusion. In Lower Egypt, for instance, the villages, in order to avoid the effects of the inundation of the Nile, are built on small eminences, scattered through a plain of vast extent. Towards the middle of the day, when the ground was heated, each village would often appear as if surrounded, to the distance of a league, by a lake, in which, underneath the village, a distinct reversed image of it was represented. This illusion is altogether so perfect and strong, that travellers, even after repeated experience, have taken the siraub for real water, unless when, from local knowledge or the circumstances of the place, they know its existence to be impossible or unlikely.

In other circumstances the images are exhibited without the concomitant illusion of water. Of this a very curious example was observed by Dr. Vince, at Ramsgate, some years ago. Between that place and Dover there is a hill, over which the tops of the four turrets of Dover Castle are usually visible to a person at Ramsgate. But, on this occasion, Dr. Vince not only saw the turrets, but the whole of the castle, which appeared as if it had been removed and planted on the side of the hill next to Ramsgate, and rising as much above the hill on that side as it actually did on the other; and this image of the castle was so strong and well defined, that the hill itself did not appear through it. It should be observed that there is almost six miles of sea between Ramsgate and the land from which the hill rises, and about an equal distance from thence to its summit; and that the height of the eye above the sea in this observation was about seventy feet.

All these, though to the eye of the unreflecting they appear prodigies, are modifications of that very simple cause by which the moon shines, or one sees one's face in a mirror; and they are indications that the air where they take place is very much loaded by vapour, so much so, that though not so collected into masses as to be visible in a state of haze or fog, it is probably as abundant in quantity within an equal space, and thus forms an invisible mirror, from which the images are reflected. The same thing in principle happens every morning and evening: the refraction of the atmosphere (and refraction is but a minor kind of reflection) brings the sun before it actually comes to the horizon, retains it after it is actually below, and occasions the twilight which both precedes and follows the actual presence of the sun. Those refractive powers are always the greater the more completely that the atmosphere is loaded with moisture, and the more free that it is from agitation by the winds, the action of which prevents the formation of the image, in the same manner that a lake does not repeat the scenery on its banks when the breeze ruffles its surface, or that one cannot see the reflection of one's face in a piece of black broad-cloth or velvet, in the same way as in a smoothly varnished panel, or a piece of polished marble.

The formation of these curious images does not take place when the process of evaporation is the most rapid, because the ascent of the particles of water in a state of vapour at such times prevents the formation of the image, by producing a certain tremulous motion in the air, which has much the same effect as wind. Evaporation always occasions an indistinctness even in direct vision; and on those fine summer days when there is a flickering play along the tops of the different elevations, as if there were a spirit walking the earth, of which the motion could be seen but not the form, the outlines of objects are much worse defined, and small and distant ones are much less distinctly seen, than when the air ceases to take up moisture. Thus vision becomes a sort of weather-glass; and if, in the course of fine summer weather distant objects, and the distant horizon, become more than usually distinct, if that does not obviously depend upon some local cause it is one of the most unerring signs of rain.

LOCKS AND KEYS.

In the very earliest ages of the world the articles locks and keys were probably not required; but as soon as man began to acquire property, so soon were the rights of *meum* and *tuum* recognised, and so soon did locks and keys become necessary. Of their history we know little more than that, like most of the useful arts, they were invented in the East. The antiquity of such means of securing property is undoubted; and from information derived from the basso-relievos on the great Temple of Karnac at Thebes, and from actual locks found in the catacombs, it appears that locks have been in use in Egypt for more than four thousand years. During the French invasion of that country, in the beginning of the present century, a wooden lock was found, the principle of which is almost identical with those of the most approved construction in the present day. In the East, however, it is certain that locks of various forms had been in use from a very early period, though of the particular shapes which they took, or their peculiarities of manufacture, we know but little. Aratus, in order to give his readers an idea of the figure of the constellation Cassiopeia, compares it to a key; and Huetius states that the constellation answers to such a description,—the stars to the north composing the curved part, and those to the south the handle.*

In the early ages of the world, we learn from Mr. Parkhurst's Hebrew Lexicon, as quoted by Mr. Chubb, that certain crooked keys, having ivory or wooden handles, were used in bolting or unbolting the locks of the ancients. These primitive kind of locks were probably nothing more than mere bolts, or simple horizontal wooden bars, moving into and out of staples fixed to the doorposts, the keys being inserted in holes outside, at some distance below the bar, and then turned to the right or left by a handle.

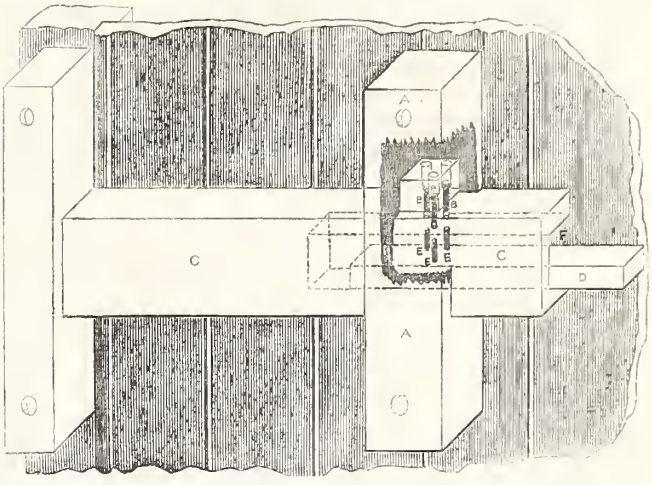
Homer tells us (Odyssey, xxi.) that Penelope, wanting to open a wardrobe, took a brass key, very crooked, hafted with ivory. On this passage Eustathius, the Greek Commentator (Constp. A.D. 1170) remarks, that this kind of key was very ancient, and differed from the keys having several wards, which have since been invented, but that keys of the ancient form were in use in his time. They were in the shape of a sickle; and not being easily carried in the hand, on account of their size and inconvenient form, were usually borne on the shoulder, as reapers carry their sickles, joined or tied together. Callimachus, in his hymn to Ceres, says that the goddess, having assumed the form of Nicippe, the priestess carried a key fit to be borne on the shoulder.

Frequent mention is made of locks and keys in the Scriptures, in both a literal and metaphorical sense. In Isaiah, chap. xxii. ver. 22, occurs a reference to keys carried in the way mentioned above:—"And the key of the house of David will I lay upon his shoulder: so shall he open and none shall shut, and he shall shut and none shall open." Other passages will suggest themselves to the reader in which the word key is used.

According to the classic writers, Pliny and Virgil, the invention of keys—and, as a matter of course, locks—is erroneously attributed to Theodore of Samos; other authors speak of their having been used before the siege of Troy; and it appears from undoubted evidence that locks and keys have been in use in various countries from the earliest periods of which we have authentic accounts. In the Faroe Isles wooden locks and keys of similar construction to those of ancient Egypt, are still in use, as they have probably been for centuries.

By an examination of the ancient Egyptian lock, we shall discover how nearly identical was its principle with that of the modern tumbler or latch-lock.

In this sketch, which is copied from a wooden lock lately brought to this country from Alexandria, we have, as nearly as may be, the whole secret of the modern patent locks. A is a staple fixed in the side of the door, C is the bolt, and D is the key. Into the upper part of the staple are fitted three loose pins (B B B), which drop into three corresponding holes in the bolt C, so as to fasten the door when the bolt is pushed in to its full extent. The key D is a straight piece of wood having at one end three pegs (E E E) corresponding in position with the moveable pins or tumblers in the lock. This key is inserted lengthways through the slot or hole F formed in the bolt; and then the pegs in the



ANCIENT EGYPTIAN LOCK.

key corresponding with the vertical holes in the bolt C, into which the moveable pins of the lock have dropped, lift up the said pins flush with the top side of the bolt; thus disengaging the moveable pins from the bolt, and, allowing it to be moved backwards and forwards, fasten or unfasten the lock. Now it would appear that no other key than the one made for this lock could have disengaged the bolt; because, from the moveable pins being of different lengths, it follows that the pegs in the key must have been also of corresponding height; and that if either of the pegs in the key were too long or too short they would not free the bolt. This, as we shall see by and by, is the secret of the patent locks of Messrs. Chubb, Bramah, and Newell.

For the present, however, it will be as well to say something of the iron locks in ordinary use. These also are of great antiquity. The representations of warded keys in early missals and other MSS. prove that the lock which is now in common use all over the world was known at a very early period. These ancient locks, like those of the present day, were made of metal, and had fixed wards of various shapes placed in outer cases more or less ornamented. The wards were cut in various complicated designs, so as to prevent the introduction of any but the proper keys; and numerous secret contrivances were adopted to ensure the greatest amount of safety. Indeed, in some of the old French locks these contrivances were of so complicated a description, that the bolt could not be released even with the right key, except the person using it were fully acquainted with the secret trick or method of inserting it into the lock. A plan of this kind, however ingenious, was of little practical use, as the secret once revealed, the lock offered no further security.

From four descriptions of lock—the Egyptian, the Letter lock, the Warded lock, and the Single Tumbler—have proceeded nearly all the various kinds of locks at present in use. The Egyptian lock we have described; and with the appearance of the Letter lock most persons are familiar. It is in the form of a padlock consisting of moveable rings; and though of apparently complicated construction, is in fact extremely simple. Respecting this lock, Vanhagen von Ense, in his *Memorabilia*, furnishes the following information. Speaking of M. Regnier, the Directeur du Musée d'Artillerie, he says,—"Regnier was a man of some invention, and had taken out a patent for a sort of lock which made some noise at the time; everybody praised his invention, and bought his locks. They consisted of broad steel rings, four, five, or eight deep, upon each of which the alphabet was engraved.

* On the Construction of Locks and Keys: by John Chubb, Assoc. Inst. C.E. Read on the 9th April, 1850; W. Cubitt, President, in the chair

These rings turned round a cylinder of steel, and only separated where the letters forming a particular word were in a straight line with each other. The word was selected from among a thousand, and the choice was the secret of the purchaser. Any one, without knowing the word, might turn round the rings for years without succeeding in finding the right one. The workmanship was excellent, and Regnier was prouder of this than he was of the invention itself. The latter point might be contested. I had a vague recollection of having seen something of the sort before; but when I ventured to say so, my suspicions were treated with scorn and indignation, and I was not able to prove my assertions. But many years afterwards, when a book, which as a boy I had often diligently read, fell into my hands, Regnier's lock was suddenly displayed. . . . But neither luck nor labour would have done much towards discovering the secret of Regnier's locks from the variety of their combination; and their security seemed so great that the couriers' despatch boxes were generally fastened with them."

It appears, notwithstanding M. Regnier's claim to be the inventor of the letter locks, that they were in use at a much earlier period, as may be evidenced from various extracts from old authors. In Beaumont and Fletcher's play of the "Noble Gentleman," written in 1615, occurs an allusion to a lock of this sort:—

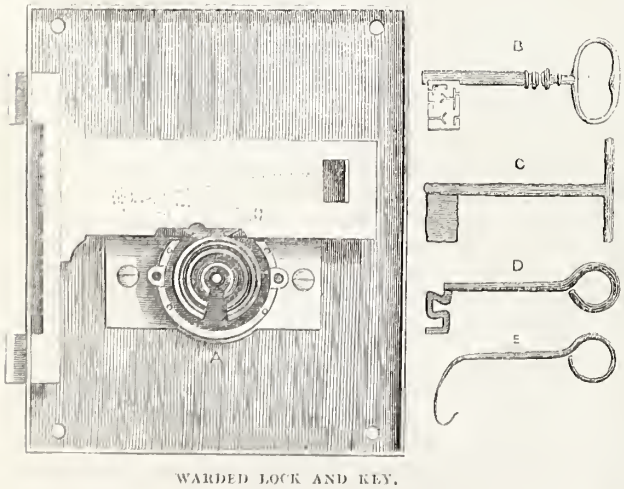
> "A cap-case for your linen and your plate,
> With a strange lock that opens with A.M.E.N.;

and in some verses by Carew there is a like passage:—

> "As doth a lock
> That goes with letters; for, till every one be known,
> The lock's as fast as if you had found none."

The letter lock requires no key to open it; and it is often used as a padlock, or scutcheon-lock, for securing the keyholes of the locks of strong rooms, safes, &c.

We will now describe the WARDED LOCK. Like the ancient locks of which we have spoken, the common iron lock with fixed wards has not greatly improved since the day of its invention. It has certainly been made complicated and curious in internal structure, but in regard to security it has never advanced. Below is the representation of a warded lock taken from the strong-room of a London banking-house, together with its own key and the burglar's instruments with which the lock might be opened. A slight examination of the engraving will explain the principle of all warded locks. A shows the wards, or fixed obstacles, which prevent the introduction of strange keys, and B the original key, with the cuts in the web exactly corresponding with the wards in the lock, the revolution of which key in the lock shoots the bolt backwards or forwards. C is the burglar's instrument, made of tin, having a composition of wax and yellow soap filled on one side of the *bit*, so that on its being inserted into the keyhole a



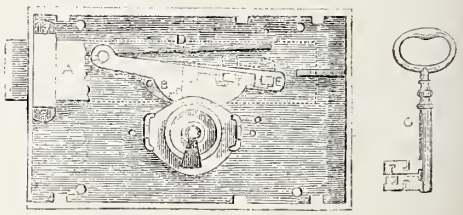
WARDED LOCK AND KEY.

perfect impression of the wards is taken. To make a picklock, it is only necessary to preserve the end of the web which moves moves the bolt; this is accomplished by the instrument D, which is made so as to escape the wards, and will open and shut the lock as well as the original key; and in the case of ordinary locks, the burglar's picklock E, which is merely a piece of strong wire bent so as to pass round the wards, will easily open the lock. By the above it will be seen that the principle of all warded locks is faulty; and that no real security is obtainable from their use. Moreover, in the case of street-door locks, it has been the practice of the manufacturers to construct many thousands from one pattern, which may all be opened with one key; and it is not unlikely that about twenty skeleton keys would open half the street-door locks in London. Besides this, it is known that many common locks are made with keys so cut as to represent intricate wards, while the locks themselves have probably only a single iron spring, and a bolt which may be moved with a bit of twisted wire.

A means of security which should be above suspicion being required, various ingenious inventions have from time to time appeared. As before stated, the essential principle of the Egyptian lock consists in the possession of certain movable impediments, called in modern language *tumblers*, which, from the fact that none but the right key will move them simultaneously to a sufficient height to allow the bolt to pass, offer the greatest amount of security.

The four principal kinds of locks which have been made on the Egyptian principle, are, Barron's, Bramah's, Chubb's, and Newell's. A brief description, therefore, of the peculiarities of these several celebrated locks will sufficiently acquaint the reader with their construction.

In 1774 Mr. Barron patented the first of the locks known by his name. The figure will show its construction. A is the bolt



BARRON'S LOCK AND KEY.

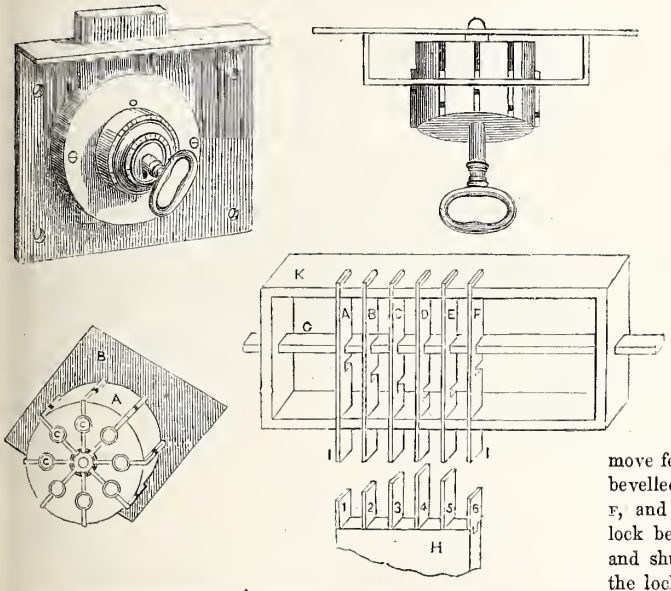
B and C are the two tumblers, which are kept in their right positions by the spring D. The studs E and F retain the bolt in its locked position; and it is only by the application of its own key G, which is cut in steps of different heights, to correspond with the varying lifts of the two tumblers, that they can be raised to the exact height to bring the studs into a line with the slot in the bolt, and thus allow the top step of the key to act on the talon H and unlock it. It will be seen that there are upper transverse notches in the bolt, so that in attempting to pick the lock, it would appear impossible for the burglar to tell whether either tumbler had been lifted too high or not high enough. This overlift, which is common to all locks of this construction, is one of their principal means of security. Barron's lock, it will be seen, combined the advantages of both wards and tumblers; but from two of the latter only being used, the lock could still be picked by an ingenious burglar.

Ten years after the appearance of the above invention, the late Mr. Bramah brought out the lock which bears his name. A careful examination of the engraving will show us how this very ingenious and celebrated lock is made. Merely premising that the two figures at the top represent the outer appearance of the lock and key, we may use the description given in the original specification of the patent in 1784.

The letter "G represents a sliding bar, or bolt, in the frame K, that hath cut in its edge six notches of any proper depth. In these notches are placed six sliders, or small bars, A B C D E F, that are sunk into the bottom of each notch, so that the motion of the bar or bolt G is thereby totally prevented, till these sliders are moved some way or other to give it liberty; which must be done from their ends at I I, as no other part of them is meant to be exposed for the purpose of moving them; which ends at I I always have an equal projection when the bar G is set fast. Now we will suppose each of these sliders capable of being pushed upwards towards A B

&c., to any determined distance, and, when each of them has exactly received its due motion, the bar G is set at liberty, so as to slide backwards and forwards as required. Now, in order to determine the separate and distinct motion that shall be given to each, we will suppose the part H to be made; which part serves to represent a key, and the ends 1 2 3 4 5 6 are cut of different lengths, either by rule, or by chance, so that, when pushed against the ends of the sliders at II, they will cause each of them to be slided up at different times, and to different distances, from II, in a form exactly correspondent to the ends of the part H. When they have thus received their correspondent position, and their ends at II form a complete tally with the part H, by making a notch in each slider at 1 2 3, &c., in a line with the bar G, the said bar will then have liberty to be slided backwards and forwards without obstruction; and, when brought into its original situation, and the part H withdrawn, the sliders A B C, &c., will then fall down into their notches, and fasten it as usual; their ends at II will be restored perfectly even, as before, and not the least trace be left, of the position required in them to set the bar G at liberty."

"A is a frame, or barrel, that moves the bolt by its turning, in which barrel or frame are fixed eight, or any given number of sliders. B is a thin plate fixed in the lock, through which the barrel or frame A passes; and is prevented from turning for the purpose of moving the bolt by the projecting parts of the sliders that move in the fixed plate B, till the notches in each of them are, by the application of the correspondent part of the key, pushed into contact or in a line with the plate A. At the end of each slider in the cylindrical parts C C C, &c., is fixed a spiral spring, which always restores them after the key is withdrawn, similar to A B C, by their own gravity."

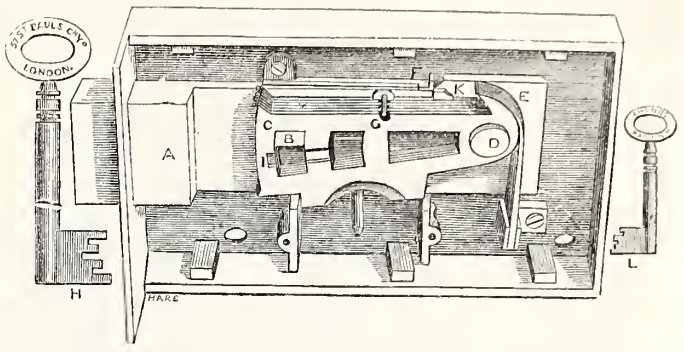


BRAMAH'S PATENT LOCK.

The key with which Bramah's lock is opened, has a tube with slits in the sides of various lengths, to push down the slides, and a small bit to turn the bolt. An "endway pushing and revolving motion" is given to it instead of the ordinary rotatory movement common to all other keys, and the double action is necessary before the bolt can be released. Few improvements have been made in this lock since the original patent was taken out by Joseph Bramah in 1784, and it is still considered as one of the best and most perfect instruments of the kind.

In 1818 the late Jeremiah Chubb, of St. Paul's Churchyard, patented the invention so well known by his name. Successive patents have secured various improvements,—that of 1824 by Charles Chubb; that of 1833 by Charles Chubb and Ebenezer Hunter; that of 1846 by John Chubb; and that of 1847 by John Chubb and Ebenezer Hunter. It will be sufficient for our purpose, however, to describe the ordinary Chubb lock and one or two of the later inventions. For this purpose we shall avail ourselves of the description furnished by the patentees.

The ordinary Chubb lock consists of six separate and distinct



CHUBB'S PATENT LOCK.

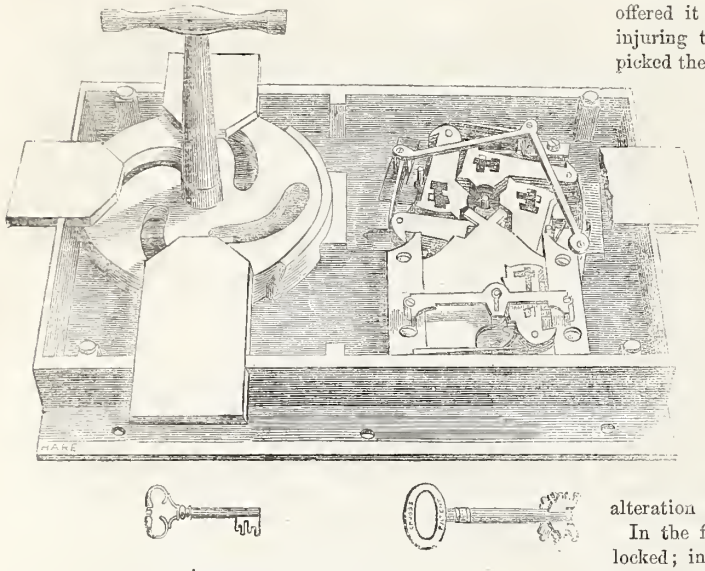
double-acting tumblers, with the addition of a detector, which is the peculiar feature of this lock, by which any attempt to pick or open the lock by a false key is immediately notified on the next application of its own key. The figure above is a representation of a lock made on this principle:—

A is the bolt, B the square stud riveted into, and forming part of the bolt; C are the tumblers, six in number, moving on the centre pin D, placed one over the other, but perfectly separate and distinct, so as to allow all of them to be elevated to different heights. E is a divided spring, forming six separate springs, pressing upon the ends of the six tumblers. F is the detector spring. It will be observed that the bottom tumbler has a tooth near the detector spring. G is a stud or pin fixed into and forming part of the bottom tumbler, and H is the key. Now it will be obvious that the whole of the tumblers must be lifted precisely to the different heights required, to allow the square stud B to pass through the longitudinal slots of the tumblers, so that the bolt may be withdrawn. There is no means of telling when any one tumbler is lifted too high, or not high enough, much less can the combination of the six be ascertained; and if a false key should be inserted, and any one of the tumblers should be raised beyond its proper position, the detector-spring F will catch the bottom tumbler C, and retain it, so as to prevent the bolt from passing; and thus, upon the next application of the true key, immediate notice will be given of an attempt having been made to pick the lock, as the true key will not then at once unlock it. By turning the key, however, the reverse way, as in locking, the tumbler will be brought to their proper bearing, allowing the bolt to move forward, and the stud B to enter into the notches I. The bevelled part of the bolt A will then lift up the detector-spring F, and allow the bottom tumbler C to fall into its place. The lock being now restored to its original position, may be opened and shut in the ordinary manner. It will be seen that when the lock is detected, nothing but its own key can restore it to its former condition.

On keys constructed after this manner a number of changes may be effected. The small drawn key L, which consists of six steps, is capable of 720 permutations, while on the larger keys, the steps of which can be reduced thirty times, and the bolt step twenty times, the number of combinations will be 7,776,000.

In 1846 Mr. Chubb patented a lock intended for the fastenings of bankers' and merchants' strong rooms. It is called the quadruple lock, and consists of four separate and distinct locks combined in one lock, and all the locks being acted on at the same time by a single key with four bits. It will be seen that the main bolts are attached to an eccentric wheel, which on being turned by the key throws out a bolt on each side of the lock, and to these bolts ten or twenty boltheads may be fitted. As the quadruple lock consists of twenty-four tumblers, six in each set,

all of which must be acted on simultaneously, by the motion of the proper key, before the eccentric wheel can be turned, it appears manifestly impossible that any attempt with a false instrument can succeed in picking it. But to give yet further security, there is a checkhole with a small key, which throws



CHUBB'S PATENT QUADRUPLE LOCK.

a case-hardened steel plate over the large keyhole: thus a confidential clerk may carry the quadruple key, while the principal, by retaining the smaller key, may at all times prevent the iron safe or strong room from being opened except in his presence.

A later improvement of Mr. Chubb's is the banker's lock shown below. In this invention it has been the purpose of the proprietor to combine the greatest security with that simplicity which is essential to locks used in the ordinary purposes of life. In addition to the usual set of tumblers, which can be increased almost indefinitely, a contrivance has been placed in this lock by which, should a false key or picklock be inserted, and even turned a small part of the way round, a metal curtain entirely closes up the whole opening, so that all access to the works is effectually cut off. While the keyhole is open, all access to the tumblers and bolts is prevented; and not until the key is turned, and the steel curtain covers the whole of the keyhole, are these obstructions removed. By another contrivance, any pressure applied to the bolt, effectually fastens down the twelve or eighteen tumblers which secure the bolt; and it is not till all pressure is taken off the bolt that the tumblers can be lifted, each to its proper position, to let the bolt pass through.

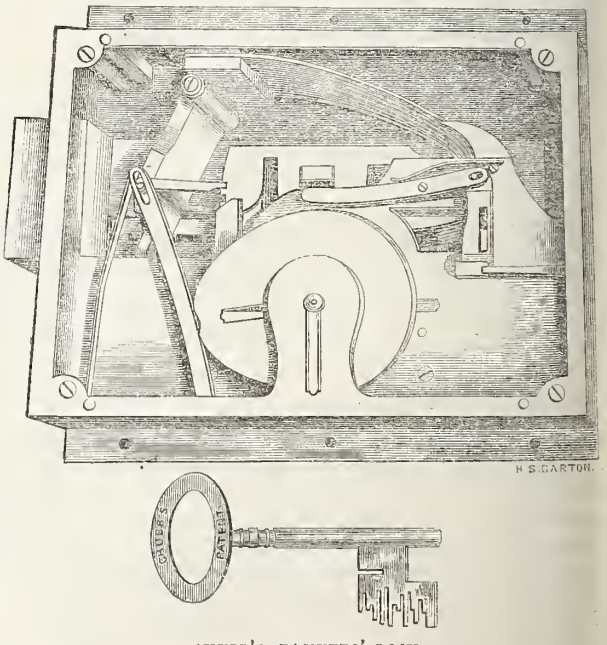
We now come to speak of the celebrated American lock invented by Messrs. Day and Newell of the United States—the lock so well known to the frequenters of the Great Exhibition, from the verbal descriptions of Mr. Joseph Hobbs, the exhibitor.

This lock is said to be non-pickable: but before we describe it, we must give a brief history of its invention. About a dozen years since, Mr. Andrewes, of Perthamboy, New Jersey, brought out a lock, which, besides having the moveable tumblers and detector of Mr. Chubb's patent, was so arranged that the owner of the lock could alter the bits or rings of the key in such a way as to render the combination of the tumblers different to what it had been before. The success of this lock induced Mr. Newell to bring out another, which he called his permutating lock. The novelty of the lock consisted in its possession of a double set of tumblers, and the use of an auxiliary key. But about this time it occurred to Mr. Newell that he could pick Mr. Andrewes's lock. After a little thought he actually *did* pick it, and by a very simple set of instruments. The knowledge thus gained, however, taught him how to pick his own lock, which was hitherto considered unpickable. Having injured the reputation of Andrewes' lock as well as his own, Mr. Newell set about making another and a more secure lock, and after one or two failures he produced one on the tumbler principle, in which were a variety of ingenious contrivances for rendering it more secure: and so confident was he of its security and accuracy, that he enclosed a sum of money equal to a hundred pounds in an iron safe, and offered it as a reward to any one who could obtain it without injuring the lock or the safe. Well, a mechanic, called Pettio, picked the lock, and pocketed the reward.

After this, Mr. Newell concluded that locks on the tumbler principle were insecure; and for this reason, that access to the works could be gained through the keyhole. He therefore, with a perseverance which cannot be too much admired, set about the construction of another lock upon another principle, and the admirable instrument shown at the Exhibition was the result. This he called the *Parautopic* (concealed from the eye) and *permutating* (changing) *Lock*; and the peculiarity of it is, that while the works are entirely concealed from the burglar, the key is made in a series of moveable bits, to which the tumblers of the lock accommodate themselves. Thus, if the owner of the lock arranges the bits of his key in a certain form, no other key, and no other arrangements of bits, can open the lock; which becomes, in fact, a new lock with every alteration of the key. We will now endeavour to describe it.

In the first engraving (fig. 1) in next page, we have the lock locked; in fig. 2 we have the lock unlocked, with the cap or top plate removed; and fig. 3 is a smaller representation of the exterior of the lock with the cap, showing the detector tumbler. A little examination will render the construction of this lock plain enough to the eye of a mechanic. The keys at the side of fig. 2 show the removable bits, which are fastened by a pin screwed through the whole of them, and the different forms which the bits may be made to assume. The same letters refer to the same parts in figs. 1 and 2.

A A (fig. 1) represents the case of the lock; B, the bolt; C C, the moveable slides or tumblers. On that portion of the tumbler marked C 2 are a series of notches, corresponding in distance with the difference in the lengths of the moveable bits of the key. As the key is turned in the lock to lock it, each bit raises its



CHUBB'S BANKERS' LOCK.

tumbler, so that some one of the notches presents itself in front of the dog or leon D. As the bolt is projected, it carries with it a portion of the tumbler C 2, and presses the tooth into the notches, withdrawing the tongue, *a*, from between the jaws, *b b*,

and allowing the portions of the tumbler c 1 and c 3 to fall to their original position; while the part c 2 is held in the position given to it by the key, by means of the tooth being pressed into

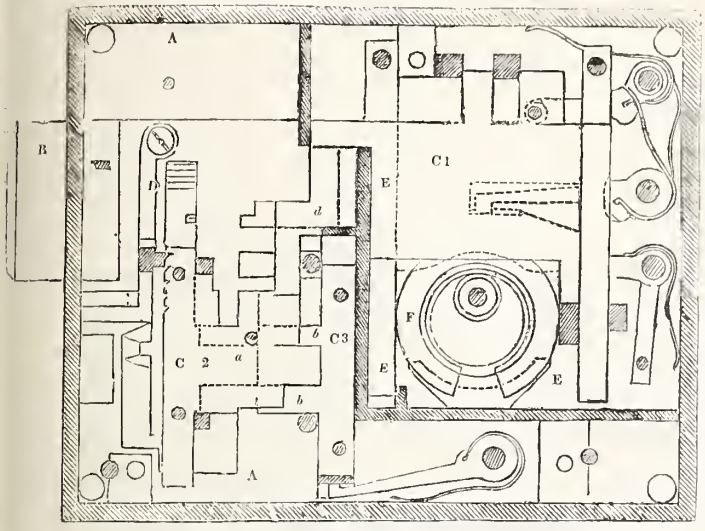


FIG. 1. DAY AND NEWELL'S LOCK.

the several notches (as will be seen in fig. 2). Should an attempt be made to withdraw the bolt with anything but the true key, the tongues *a* will abut against the jaws *b;* and, should an attempt be made to ascertain which tumbler binds and requires to be moved, the portion of the tumbler c 3 that takes the pressure, being in front of the iron wall, E E E, prevents the possibility of its being reached through the keyhole while the parts of the tumbler c 1 are detached at the point marked *d*, thereby making it impossible to ascertain the position of the parts in the front chamber. F is a revolving ring or curtain, which prevents the inspection of the interior of the lock; and, should the ring be turned to bring the opening upwards, the detector tumbler G *t* on the cap of the lock (fig. 3) is immediately carried over the keyhole, and effectually closes it on the outside. Now it will be clear that, from the changeable nature of the key, no other key can free the bolt of this lock. On turning the key, each tumbler is raised

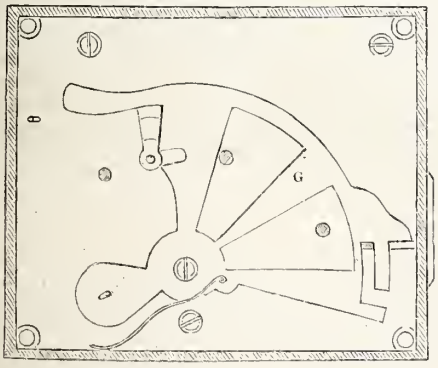


FIG. 3. EXTERIOR OF DAY AND NEWELL'S LOCK.

according to the length of the bit, imparting to the two sets of tumblers the precise form of the key. The second series being projected with the bolt, and the tooth on the lever being pressed into the series of notches on the face of the second series, holds them in their places, as determined by the key, while the other parts fall again into their places. Should pressure be put upon the bolt (which is one of the main secrets of the burglar), to ascertain the obstruction, such pressure will immediately be exerted on the third or intermediate tumblers. To prevent access to these, a plate or wall of metal (E E E), extends round the key chambers, so that the lock-picker cannot reach the actual works of the lock. The possibility of his finding what interferes with his operations is prevented by the part of the tumbler, which takes the pressure given by him to the bolt, being detached from the parts which can be got at through the keyhole. This secret arrangement is enclosed in a steel box, accessible only through one well-filled aperture, and which is the only opening to this inner or insulated lock, and forms, in fact, the real security of this lock.

Having described these locks, we shall not presume to offer any decided opinion on the vexed question of the superiority of Bramah's, Chubb's or Newell's patents. Our readers are doubtless acquainted with the fact that Mr. Hobbs did actually pick Messrs. Bramah's lock, and that he obtained the offered reward of 200 guineas; but it must be recollected that he was fifty-one hours in accomplishing his task—so that the practical security of the lock is in no wise injured by his success. The report of the

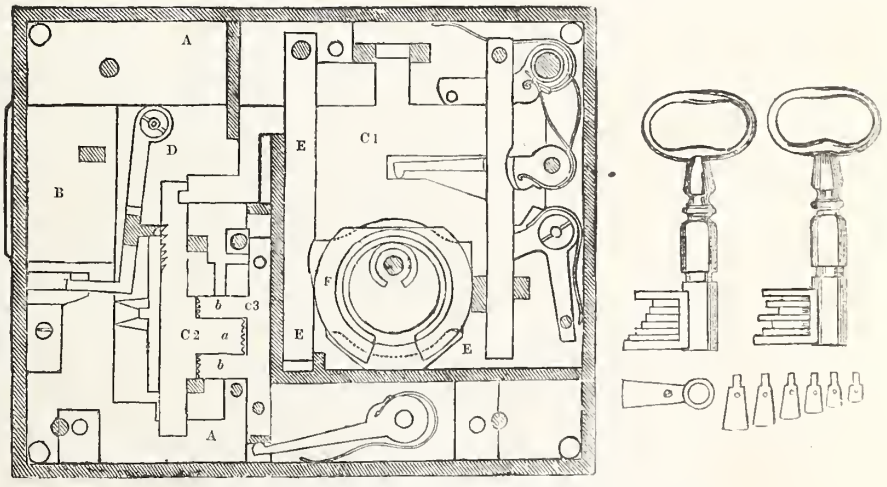


FIG. 2. DAY AND NEWELL'S LOCK; WITH KEYS AND BITS.

arbitrators, Messrs. Professor Cowper, George Rennie, F.R.S., and Dr. Black, of Kentucky, showed, however, that they were unanimously of opinion that Mr. Hobbs had fairly picked the lock, and that he was entitled to the reward.

We understand from Messrs. Chubb—to whose kindness we are indebted for much of the information which appears in this paper—that they have made arrangements in their new locks which will entirely prevent access to the works and tumblers of any instrument but the actual key; and that such arrangement can be fitted to any of their old locks at a trifling expense, so as to render them not only practically but *really* inviolable. Many attempts have been made on Messrs. Chubb's locks, by the means usual to burglars, but hitherto without success. The peculiar methods adopted by Mr. Hobbs in opening Messrs. Bramah's lock were explained by him in a lecture at the Society of Arts; but while we admire his expertness and real ability in the matter, we cannot conceal from ourselves the fact that facilities were given to him which no thief could by the remotest possibility possess. As it is no part of our intention, however, to do more than explain to the reader the construction of the locks in common use, we may dismiss this part of the subject.

In a country like this, where a vast deal of property is left to

the care of servants, clerks, and porters, and where numbers of mechanically educated men actually live by robbery, the possession of a good lock is of the utmost importance. In the majority of great robberies, an infinite degree of ingenuity and patient skill has been exercised; the bank safe, or strong room, has often been rendered as practically accessible as the street-door. The perusal, therefore, of what we have written, will, we trust, have the effect of fastening an inviolable lock to the door of the receptacle in which our readers keep their treasures, and thus render the temptation of robbery and the prospect of success as small as possible.

Within the last eighty years there have been no fewer than eighty-four patents granted for improvements in locks; but so little do they differ one from the other, that the four locks we have described may be said to contain the characteristics and principles of them all. The security of a lock, of whatever construction, may be said to depend, not so much on the complexity of its wards and tumblers, as on the complete isolation of the works from the instruments of the burglar. A Bramah lock has been picked with a turkey's quill, notched in the form of a key, and a tumbler lock has been opened with no more important instruments than a few slips of thin steel and an old penknife; but, as recent facts have shown that few, if any, locks are entirely beyond the skill of the experienced burglar who possesses a good mechanical knowledge of the principle of locks,—a most important desideratum,—it behoves our manufacturers to look about them for some plan which will render *all* locks difficult to pick, if not entirely inviolable. The lesson taught by Mr. Hobbs,—who is an Englishman and no lockmaker, though he appears to have discovered the mechanical riddle propounded to him in various shapes,—will not, we are assured, be lost upon his ingenious countrymen.

MALAGA, IN GRANADA.



CATHEDRAL OF MALAGA.

Malaga, in Granada, is a large commercial city situated on the borders of the Mediterranean. It is guarded on the east and north by lofty mountains, the summits of which are covered with snow, while the lower portions are clothed with luxuriant vineyards, olive-gardens, citron and orange trees. Malaga was a place of considerable importance under the Romans, if we may judge from the monumental remains which have there been discovered. The city was taken from the Moors by Ferdinand the Catholic, in 1487, after a long and determined resistance. The streets of Malaga are tortuous and badly paved, the "*Place Major*" merits not the name, its only ornament is a marble fountain of very beautiful execution, a present from the republic of Genoa to Charles I. The city is surrounded by a double wall, guarded with strong bastions and by a castle, constructed on the extremity of the rock, the gate is approached by two superb *jetées*, which advance for a considerable distance into the sea. The city is well supplied with water from a fine aqueduct. Most of the houses are of Moorish architecture, here and there varied by a modern structure. The episcopal palace is a vast edifice constructed with great taste, and the cathedral is a magnificent building. The interior is divided into three grand aisles decorated by columns of the Corinthian order; there is a beautiful design of the Incarnation, and the variegated colours of the marble add to the splendid effect which meets the eye of the visitor.

The environs of the city contain a great number of country residences, charming gardens, and delightful walks. The mansion of Count Villalcazar merits peculiar attention, on account of its architecture, its gallery of pictures, and its vast and well-arranged gardens and beautiful fountains. To the west of the city is the famous aqueduct, which conducts the waters of the *Sierra de Mijaz* to Malaga.

The port is one of the finest on the Mediterranean coast, it affords accommodation for 19 vessels of the line, and 400 of the merchant navy. The city occupies the site of the old town of Malaca, the foundation of which is attributed by Strabo to the Phœnicians.

OUR ENGLISH FRUITS.

Gratitude ought certainly to have a far wider range than it usually takes. For not a few men have there been, in whose honour no monument was ever reared, nor any medal struck, who have yet laid posterity under great obligations. Among them must be ranked those public benefactors who have transplanted rich and refreshing fruits from their native climes into our colder regions, and "laboured with the soil to make it fit for the plants, and with the plants to make them delight in the soil." It is well, therefore, sometimes to recal them, and to consider how



FRUIT PIECE, DRAWN AND ENGRAVED BY W. J. LINTON.

many of our comforts and luxuries are due to their enterprises and toils. But this must be done generally, rather than particularly, for though some names have been preserved well deserving remembrance, many others, equally worthy, have long since sunk into oblivion.

To Thomas, Lord Cromwell, in the reign of Henry VIII., we are said to be indebted for three different kinds of plums. A gardener of that sovereign planted the first cherry-orchards of Kent, about Sittingbourne, lying in the old road from London to Canterbury. The first figs were planted about the same time, by Cardinal Pole, at Lambeth. One of the Carew family brought oranges into England, and for a long time after they flourished at their seat at Beddington, in Surrey. Sir William Temple tells us, joyously, not only of the size of his orange-trees,—of the flavour of his peaches and grapes, which Frenchmen confessed were equal to those of Fontainebleau and Gascony,—and of his white figs, that Italians considered as good as any of that kind in Italy,—but that "he had the honour" to naturalise in this country four kinds of grapes, cuttings of which he freely distributed, because "he ever thought all things of this kind the commoner they are the better." We owe many things to the intelligence and zeal of the Tradescants, but the elder one was certainly seized with a strange notion, when he entered himself on board of a privateer, armed against Morocco, solely to find an opportunity of stealing apricots into Britain,—a scheme in which he appears to have succeeded.

The plum came originally from Asia, and many parts of

Europe, and it has even grown wild in the hedges in some parts of Britain; though, possibly, it has found its way there from some of the cultivated sorts, and has degenerated. So early as the fifteenth century, various kinds of this fruit appear to have been introduced to us from France and Italy. It is probable that the Orleans plum came to us when we possessed the part of France from which it derives its name; the green-gage is called after the family by whom it was first cultivated here; and the damson, or Damascene is, as its name imports, from Damascus. The peach is a Persian apple; and the chestnut, called *castagna* in Italy, bears the name of the town of Magnesia, from whence it was obtained. The wild cherry is indigenous in Germany and France, and has existed from the most remote antiquity in their forests, like the robur and the linden tree; while other species of cherry-trees, which are considered as varieties, and of which the fruits are more savoury, have come to those countries, and to ours, through the Romans from Asia Minor, and particularly from the kingdom of Pontus.

So true are our poet Cowper's words:—

> "—— the band of commerce was design'd
> T' associate all the branches of mankind;
> And if a boundless plenty be the robe,
> Trade is the golden girdle of the globe.
> Wise to promote whatever ends he means,
> God opens fruitful nature's various scenes:
> Each climate needs what other climes produce,
> And offers something to the general use;
> No land but listens to the common call,
> And in return receives supplies from all.
> This genial intercourse, and mutual aid,
> Cheers what were else a universal shade;
> Calls nature from her ivy-mantled den,
> And softens human rock-work into men."

There was a learned man, Samuel Hartlib, who was of Polish descent, and many of whose ancestors had been privy-councillors to the German emperors and other princes. His mother has been supposed to have been an Englishwoman; but it is certain that he arrived in England about the year 1630, that he gave himself to scientific pursuits, and that he published works on the promotion of agriculture and horticulture. He founded a school for the instruction of gentlemen's sons, which, probably, led Milton to address to him his "Tractate of Education." One of his tracts is entitled, "A Design for Plenty, by an universal Planting of Fruit-trees." It was, in fact, a plan for enclosing the waste lands and commons, and appointing officers, whom he calls fruiterers, or wood-wards, to see the plantations properly attended to. He intimates that fruits are a kind of provision so natural to the taste, that the poor man, and even the child, will prefer it before better food, "as the story goeth," which he thus supplies:—

> "The poor man's child invited was to dine,
> With flesh of oxen, sheep, and fatted swine,
> (Far better cheer than he at home could find);
> And yet this child to stay had little mind.
> 'You have,' quoth he, 'no apple, froise, nor pie,
> Stew'd pears, with bread and milk, and walnuts by.'"

His representations, however, did not answer the end he desired. The fruit trees he longed to see planted extensively, were never placed in the earth. A work, relating to the agriculture of Flanders and Brabant, by Robert Child, which he revised and published, attracted, indeed, the notice of Cromwell, who gave him a pension of £100 a year, afterwards increased to £300; but it was suffered to lapse after the restoration of Charles II., and Hartlib died in poverty and neglect. Far different was the effect of Evelyn's "Sylva, or a Discourse of Fruit Trees." In dedicating one of the later editions of his celebrated work to the same monarch, he says, doubtless with no ordinary feelings, "I need not acquaint your majesty, how many millions of timber-trees, besides infinite others, have been propagated and planted throughout your vast dominions, at the instigation and by the sole direction of this work, because your majesty has been pleased to own it publicly for my encouragement."

If fruit be examined in order to the understanding of its structure, it presents to the eye much that is worthy of consideration. It is, in fact, the mature or ripened ovary containing fertilised seeds; and differing remarkably from the ovary, which the centre of the flower contained, both in its external appearance, and in the arrangement of its interior. A carpel is formed by a folded leaf, the upper surface of which is turned inward, the lower outward, and the margins of which develop one or more buds, which are the ovula, or seeds. Now, the cherry, plum, almond, or other stone fruit is formed by a remarkable change in the substance of the carpellary leaf; for its internal surface becomes hardened into the stone, whilst the external remains as a thin cuticle or skin, and the pulp of the fruit is formed by the increase of the fleshy tissue of the leaf. Here each carpel originally contained several seeds, but usually only one of them is developed. In the ovary of the chestnut, there are originally several carpels or cells with two seeds in each, whilst the ripe fruit consists of but one cell and one seed; so that no fewer than six cells and thirteen seeds are suppressed, in order to enable a single seed to grow and be matured. It is not uncommon, however, to find two or even three chestnuts within a single cell, separated by slight partitions.

The fruit of the orange consists of the carpels, surrounded by the external coat of the ovary; and having the space between their inner wall and the seeds they contain, filled up with a very succulent cellular tissue. In the apple, on the other hand, the carpels lie in the centre of the fruit, and their walls are somewhat horny; the substance of the fruit is formed by the calyx or flower-cup; and the fleshy substance between its two surfaces swells out in ripening, in the same manner as does that of the carpellary leaf of the plum. In the medlar, the carpel have a hard or bony covering, and they lie separately in the midst of the pulpy envelope which they acquire, in like manner, from the calyx. In the strawberry the carpels are separated from each other by the receptacle, the expansion of which forms the fleshy part of the fruit; while in the raspberry and blackberry the receptacle is the white fleshy stalk which occupies the centre of the fruit; and the pulpy portion consists of the carpels enclosing seeds; and just so it is with the custard-apple of the West Indies. In the mulberry and the bread-fruit, the edible portion is formed by the cohesion into a single mass, of the floral envelope and seed-vessels of a large number of flowers, arranged in a central fleshy column or spike. Such are a few of the varieties discoverable in the structure of fruits; but, though many more might be added, these will serve to give an idea of the mode in which the very curious transformation of the ovary into the fruit takes place.

In connexion with the diversities thus apparent in the structure of fruits, there is the very remarkable fact, that though appendages to the seeds, in some manner, they are neither essential to them, nor even to the perpetuation of the plant. So far indeed as the plant is concerned, the fruit is a superfluity, and had this always been of the same nature, or had every fruit constituted the same portion of the fructification, we might still have imagined some necessity as to the plant itself, or have attributed the whole to some needful vegetable arrangement; but the variety that now appears is absolutely fatal to any such conclusion.

That the fruit, considered only as it regards the plant or the tree, is a redundancy, will be evident on an appeal to facts. In the strawberry the fruit is the receptacle; a spongy substance with an expanded surface, to which the seeds are attached superficially. Though in a very different class, and with a very different law as to the relation between the flower and the seed, it is a similar part which sustains the seeds in the thistle and dandelion. As there, the dry receptacle of the latter is equally efficacious to the support and protection of the seeds, so, however necessary the receptacle was to the strawberry, it need not have been changed into the delicious fruit with which we are familiar except for a special purpose. A still more striking instance of the same kind is afforded by the pine-apple, where a whole plant is occupied in producing a single fruit almost as large as itself, which it is an entire superfluity, and, as compared with the fruit of the strawberry, a very complex and elaborate arrangement. And still further, as if it had been foreseen that the use of the fruit would destroy the seeds, each plant has been enabled to continue itself by voluntary offsets, and the latter by that singularly vital production, the crown, which the consumer of the fruit is glad to

throw away, and would therefore be troubled to destroy. It is only to pass to other fruits, as the cashew, externally resembling the apple, but which does not even enclose the otherwise fully protected seed, or to the cherry, the peach, and similar instances, where the seed is completely protected by the stone, or to the filbert and walnut, where there is no fruit; for other illustrations of the same striking and impressive fact.

Well, then, does Macculloch say, "And has not all this superfluity, so varied, so constant, so delicate, so difficult to understand, been appointed for us and for our pleasures? Has it not been appointed by Him, the powerful as the beneficent, when it is all the result of organisations so minute and abstruse, and of chemical actions so obscure and so wonderful, that all equally eludes our faculties and confounds our reasonings? Chance it is not; and it is not necessity; for all other animals it is purposeless: it is a source of enjoyment to us: and whence then again, in the words of Seneca, are the pleasures which we do enjoy, if God has not given them, if he did not thus provide for our happiness? Yes, even in things so minute and so low as this; which we must not shun to think of, from false or affected views of Him, to whom man, altogether, is as the gnat of a day's life, equally under His care and protection, lest it should lack its food and its happiness, and fail in its generations. Between Him, the infinite, and all beneath, all distances are alike: He watches, indeed, over the eternal interests of man; but he also feeds the raven, and protects the sparrow. He has told us so. It is not impiety which strives to view Him in everything: it is not piety nor religion that would exclude him from anything."

Nor should it be overlooked as one part of this all wise and beneficent arrangement, that fruits appear in a duly regulated succession. Had they all ripened at the same period, as might have been expected, seeing that they all depend for their progress towards maturity on the advance of the seasons, we should, for one short period, have been overwhelmed by their numbers, and, during all the rest of the year, have been destitute of this means of enjoyment. But a provident Creator has arranged otherwise. Like flowers, which are also formed for human enjoyment, it is ordered that as one fruit vanishes another is ready to supply its place. We experience this even in our own short summer. Strawberries, cherries, currants, gooseberries, and other soft and refreshing fruits are ready for our use when the oppressive heat is first endured; these products are, in truth, transient, like the season which ripens them; but, when they forsake us as the heat declines, they are succeeded by others of almost equal attraction. Grapes put on that transparent look which indicates their complete ripeness, and attire themselves in their beautiful and delicate bloom. Peaches and nectarines become fragrant, and the wall against which they are suspended is "musical with bees." Along the espaliers, the rosy-cheeked apples look out from among their leaves, like laughing children peeping at each other through screens of foliage; and the young standards bend their straggling boughs to the earth with the weight of their produce. The succession which we observe is more extensive in tropical climates, where fruits are far more numerous, and their uses consequently much greater.

It has sometimes been supposed that the fruits of many other countries are immensely superior to our own, but on this subject we may take the testimony of a traveller well acquainted with them. "Millions of peaches and nectarines," he says, "may be seen in the market-place of Toulouse, of a size that would strike an English gardener with astonishment, some of which measure ten inches in circumference; and there are millions of every fruit and every vegetable found within the temperate zone. But, notwithstanding the size and beauty of the fruit found in the more southern countries, it does not equal in flavour and mellowness, the same fruit produced in a choice garden in England. The finest melon reared in England, by artificial heat, is indeed an indifferent fruit compared with the melon of Granada or Valencia; and the choicest hot-house grape, though much excelling the grapes of France, is yet far inferior to the muscatel of Malaga or Alicant. But I speak of fruits ripened both in England and on the continent by the sun, and I assert that these are found in greater perfection in England than in any other country. The enormous peaches of Languedoc are neither so mellow nor so high-flavoured as the best English peach. I have nowhere tasted pears equal to the jargonelle, such as I have eaten it in England; the ribstone-pippin is not equalled in any continental market; and as for strawberries, I will back my own little garden against the world."

CHATEAU OF CLISSON.

No one acquainted with the scenery of Clisson can fail to appreciate its natural beauties and enchanting prospects. The endless variety which spreads before the eye of the traveller—the tall trees casting a delightful shadow—the flowers redolent of perfume—the deep blue sky overhead—afford a constant and unwearying pleasure. At Clisson Poussin studied nature in her thousand garbs; from that picturesque locality many of his finest paintings were derived,—it seemed as if there was inspiration in its beauty.

The Château of Clisson is one of the most remarkable in the department of the Loire. It is built upon a rock which overlooks the city which lies so tranquilly beneath its guardian sway. Its high towers are of a reddish hue, while its battlements are festooned with ivy, at once producing an imposing and poetical effect. The walls are fortified which encircle the city and the château, beginning at the southern gate, now the entrance to the city. At starting, we commence the ascent of the mount, which is beautifully studded with wide-spreading trees, and enter by a small gate the esplanade of the château.

The ancient character of the building has entirely disappeared in the modern structures which adorn the court. The terraces which surround this enclosure command an extensive view of the neighbouring country; but it is not until we have penetrated still farther into the château, that we begin to realise the idea of its antiquity, and to be fully sensible of the many historical associations which the scene suggests. The thickness of the walls is truly amazing;—

"Their stony strength would laugh a siege to scorn,"

although they bear evidence of a fearful attack in the civil wars of France.

The building was originally erected by the first Lord Oliver of Clisson, and replaced an ancient structure, built in the old time by the conquering Roman, but left a desolate ruin by the Norman soldiery. The Moorish character which the château, in its vast halls and wondrous labyrinths, presents, is supposed to have been caused by the eastern taste acquired in Palestine by its crusading lord. In some places it strongly resembles the tower of Cæsarea and the castle of Pelerin in Palestine. Clisson furnished the terrible Lord Oliver with a band of the stoutest men-at-arms that ever crossed the waters in the great crusade. The mansion, centuries afterwards, passed into the family of Bretagne, and thence became the property of Rohan Loubise. The government purchased it in 1791, who sold it to M. Lemot, who has preserved it as one of the most interesting remains of the middle ages.

It is a pleasant thing to wander through the vast halls of Clisson, to tread its flagged courtyard, and, mounting its terraces, to look abroad upon the wide-stretching landscape that lies below. There this present bustling eighteenth century is quite forgotten; the book of history is turned back to a far earlier page. We think of the old crusading times, when the Lord Oliver rode forth, and with his trusty vassals left fair France, to do battle beneath an eastern sky with the Moslem host, to plant the banners of the cross upon the walls of old Jerusalem; we think how Europe sent out her chivalry, and how her noblest sons bled and died in Palestine; and, thinking of these things, our hearts grow thankful that we live in other days, when better crusaders are



CHATEAU OF CLISSON.

fighting nobler battles, and attaining still more glorious victories than ever harnessed knight anticipated in the good old time.

But while the history of that period bids us be thankful that we have larger views and wider sympathies, it still teaches us to look with no disdain upon the struggle of that epoch; for it had some good results. And so we walk tenderly over the graves of th heroes of chivalry, whispering the words an old poet has taugh us:—

"The knights are dust,
And their good swords are rust
Their souls are with the saints, we trust."

LIGHTHOUSES.



LIGHTHOUSE OF BREHAT, COAST OF BRETAGNE.

OUR age is thoroughly utilitarian. The fact that the useful is more important than the beautiful is being more extensively acknowledged day by day. It is not palaces, and statues, and decorated streets, that afford the sure and certain evidence of civilisation, but this is clearly and unmistakably exhibited in the erection of those buildings, or the accomplishment of those objects, which tend to the safety, the convenience, and the happiness of man. The fraternity of nations is nowhere better shown than in harbours of refuge, and the erection of lighthouses.

One of the most interesting objects on which the human eye can rest is a lighthouse—a beacon lighted by kindness and sympathy to guide the mariner in his dangerous course. In the old time all the buildings used for the purpose of directing ships at

sea were dedicated to the gods, and sacrifices offered up in them, as in the temple, for the safety of those whose business lay in deep waters. At a later period they were made use of as seminaries for the instruction of youth in astronomy and navigation, and from their situation they appear to have been admirably adapted for such purposes. In form they were sometimes circular, but in general square, having several apartments for the accommodation of the person who was appointed to the charge of the chafing-dish, which was kept on the battlements and constantly filled with fire from sunset to sunrise. These buildings were very numerous, for as the early navigators had neither charts nor compass, nor needle, they always kept as near the shore as possible, and were therefore in constant danger from reefs and sandbanks, having nothing to guide them but the light of the beacons, and the sound of the sea conches, when perhaps it was too late to avoid destruction. These latter instruments were kept in the lighthouses, which were used also as fortifications, and were of great importance before the invention of signals, enabling the watchman to warn his fellow-countrymen of the approach of an enemy. It is melancholy to be obliged to add, that these towers which were at first erected for such humane and noble purposes, became the scenes of the most fearful outrages, particularly along the shores of the Mediterranean and Red Seas, where the fire towers were at length more dreaded by seamen, than the most terrible disasters of the stormiest sea.

The most beautifully constructed lighthouse of which we read in ancient history, is that which was built on a small island at the mouth of the Nile, by Sostrates, king of Egypt. It was very lofty, being composed of several stories raised one above another, adorned with columns, balustrades and galleries of the finest marble. At the top a large fire was kept constantly burning, which could be seen at the distance of twenty-four English miles. This building was called a "*Pharos,*" and hence the term has since been regarded as synonymous with lighthouse. The famous brass statue of Rhodes, known as the "Colossus," and which is said to have had one foot on the one side of the port of Rhodes, and the other on the opposite, allowing ships to pass between its legs, was a *Pharos.*

The erection of lighthouses in this country has not been regulated by any organised system; they have been the result of a succession of disasters; necessity has alone originated their construction. From this cause it arises that, until lately, they have each been conducted on entirely different principles. Under the operation of recent Acts of Parliament, all the public or general lighthouses around the coast of England are under the management of the Trinity House; those around Scotland, under the Commissioners of the Northern Lights; those around Ireland, under the Ballast Board of Dublin. The local or harbour lights are managed by corporations and local trustees, under powers given for that purpose; but even these local lights are being brought under a more central authority. There are at the present time about 320 lighthouses round the several coasts of the united kingdom. These lighthouses are maintained by dues levied on all vessels which leave the harbours of the united kingdom, at so much per ton per vessel, according to the number of lighthouses which the vessels pass. These dues which have amounted in some years to £400,000, are in some instances very oppressive; but gradual improvements are being introduced into the whole system.

One principal object in the establishment of lighthouses is that of giving intimation to vessels as to the place they are in. It is therefore essential that the lights should be so arranged as to be easily recognised from one another. For this purpose a variety of plans have been adopted. Sometimes by the arrangement of lamps; sometimes by revolving lights; sometimes by distinguishing colours.

The mode of lighting now generally used in this country, is that of placing an argand burner in the focus of a parabolic reflector. This instrument is made of silver strengthened with copper, and is about three or four inches in focal length and twenty-one inches in diameter. The number and the arrangement of reflectors in each lighthouse depend upon the light being fixed or revolving, and upon other circumstances connected with the situation and importance of the lighthouse.

Lighthouses are, upon the whole, better managed in France than they are in England. They are all under one public board, and the expenses are paid out of the treasury, and met by levying a port charge of 10d. per ton upon vessels generally. Our engraving represents the Lighthouse of Brehat, one of the most important on the French coast.

The attention of the French administration was for a long time engaged in the consideration of the difficulties which attended upon the northern coast of Bretagne. The necessity for the erection of a lighthouse was fully evident, but the commissioners were divided as to the most fitting locality. Brehat was at length determined upon, and in 1834 M. Reynaud was instructed to commence operations. The first year was spent in the study of the chosen site, and the means which could be best employed for the conveyance of the materials for its construction, to the dangerous rocks of Fleaux. The elevation of the lantern was fixed by the necessity of the case at a height of about 150 feet. The building is not only strong, but elegant in construction. The edifice is composed of two principal parts—the base of strong, roughly-hewn, solid masonry, and the tower which rises gracefully upwards and is surmounted by the lantern. The interior is divided into a number of stories, and an exterior gallery is placed around the lantern, and also around that portion which separates the tower from the base. The whole of the building is of granite, with the exception of the vaults, which are of brick. The structure is very elegant and graceful in its form, and bears the following inscription:—"This edifice, commenced in 1836, was finished in 1839; Louis-Philippe reigning."

POETRY AND PAINTERS.

Poetry and Painting are closely connected; what the one describes, the other portrays. Painting is only the offspring of poetry—one of the manifestations of the poetic spirit. Poetry is not syllables that jingle well together, prose cramped into metre, versification that may be measured by feet, and made to flow through meadows of margin, it is something higher, nobler, better than this. The poet is not simply a man who can sit in a chair and write verses, but he is a man speaking to man: a man, it is true, endued with more lively sensibility, more enthusiasm and tenderness, who has a greater knowledge of human nature, and a more comprehensive soul than are supposed to be common among mankind; who has contemplated nature in her thousand forms, who has treasured within him the remembrance of all that is beautiful and great, who has studied the huge volume that lies open before him with all its mountain tropes and lofty periods, and who is willing to communicate the sweetness he enjoys. This spirit is revealed to the world in unceasing variety.

Sometimes it produces a great man towering above his fellows—as he who was driven into greatness by the deer-stalking prosecution of a Warwickshire squire—Shakspeare, at whose words the world still laughs, or sheds big tears of sorrow, as the case may be. Sometimes it gives us a man whose beautiful conceptions are vividly portrayed in glowing colours on the canvass; Raphael, whose glorious grouping and rich colouring attract our earnest gaze, and waken up within us something of the spirit of the painter. Old bible scenes so touching, so august, so natural that we seem to breathe the very air of Palestine, and dwell within that holy land where Hebrew chivalry, and Hebrew sanctity were centuries agone exhibited. Sometimes the poetic spirit is imbodied in the stone, and from the granite or the marble Canova's chisel picks out the thing of beauty. Sometimes it shows itself in the lofty building which rises up before us in all its graceful proportions; and sometimes it is heard in solemn strains of harmony that wake up memories deep and tender, and fill the soul with rapture.

Poetry is evident in all these things. But it is especially evident in words and in colours. Each of these have their peculiar advantages. The writer in harmonious numbers tells us of some bright and beautiful scene—some happy spot from whence seems all sorrow has fled for ever away; or, it may be, describes some pastoral locality—with exquisite fidelity presents us with minute particulars—the old mill-stream, the lowing cattle, the humble peasant, the setting sun, the background of trees, the

thick close shadowy wood, where the last rays of the sun are shining in aslant, making a path of golden light along the stems and branches in its range—gnarled trunks, and twisted boughs, and trembling leaves, and bark-stripped bodies of old trees; and a long, long time it takes to tell all this, and the reader has to fashion it in his mind's eye, and imagine how it looked; but the painter at once brings the whole scene before us, the very autumn tints upon the leaves, the parasite that climbs upon the oak, beneath whose shade the peasant man is sitting. Then, again, on the other hand, the painter has done all he can in that one view,—he can give you but a momentary glance,—he cannot show you how the sunlight died away, and darkness fell upon the wood. But the poet still goes on, the lengthening shadows lengthen still, fresh incidents occur, the narrative is told—of humble mundane life or angel world—fact after fact, or incident after incident, till the final catastrophe comes.

The poet Young and the painter Blake were of the same turn of thought, and it is this that makes the illustration which Blake has furnished, so admirably adapted to the night thoughts. They are grotesque and sublime, and so is the poem. The painter fully enters into all the wonderful metaphors which the poet has used, and illustrates them and makes them corporeal. The picture which is to be seen in the Society of Arts, the "Final Judgment," by Barry, exhibits the same sort of feeling that is evident in the "Inferno" of Dante. Poets and painters are guided by the same genius, appeal to the same feelings, but work with different tools.

Aristotle says that poetry is the most philosophic of all writing, inasmuch as its object was truth, not individual and local, but general and collective. And so it is; and the poet, or the painter, who makes his work the image of man and nature, is doing good service to the world. But nature must be presented in her beautiful form, not only the experience but the imagination must work; and the tendency should ever be to elevate, and never to debase.

The great end of painting is to please the eye, and the chief design of poetry is to please the mind. Thus far the parallel of the arts holds true; with this difference, that the principal end of painting is to please, and the chief design of poetry is to instruct. In this the latter seems to have the advantage over the former; but when we consider the work of the painter as suggestive of the highest and noblest emotions, we can hardly confine the benefit of instruction exclusively to poetry.

> "True poetry the painter's power displays;
> True painting emulates the poet's lays,—
> The rival sisters, fond of equal fame,
> Alternate change their office and their name:
> Bid silent poetry the canvass warm,
> The tuneful page with speaking charm.
>
> "What to the ear sublimer rapture brings,
> That strain alone the genuine poet sings;
> That form alone where glows peculiar grace,
> The genuine painter condescends to trace,
> No sordid theme will verse or paint admit,
> Unworthy colours, or unworthy wit."

Enough has been said to show that the spirit of poetry belongs alike to the writer and the painter; and here we close, lest a weary reader should be tempted to re-echo the words of good king George II., "*I hate Poetry, and Painting too.*"

VASE OF THE TEMPLE OF MERCURY, DISCOVERED IN FRANCE.

Were we restricted to books for our sole information concerning antiquity, we should have but an incomplete idea of the costumes, manners, furniture, &c., of the generations who have preceded us on the face of this globe. Fortunately, almost all civilised races, have left behind them other traces and other signs, besides the record of the historian, to throw a light on the question—what manner of men they were? These vestiges of the past are from time to time discovered; and for the most part the discovery is fortuitous, unhoped for, and unexpected.

Every museum in Europe contains some such treasures, which are not only interesting on account of the numerous and often solemn reflections which they suggest, but often of great value in an historical point of view. In this last respect, they do not merely serve to correct or confirm received dates, but they frequently reveal to what degree of perfection the arts had arrived in the era in which they were worked and produced. Sometimes they bear inscriptions. And these may imbody a characteristic sentiment, or record an important fact. The very style of the writing is not insignificant. The purpose again for which the relic may have been used, opens a vast field of knowledge in that which regards the habits, the passions, the condition, and the general lot and destiny of our brethren of the past. The progress of civilisation is measured; its obstacles are detected, the comparative qualities of different races, and sometimes even the value of different systems, are tested. More might be said; but enough has been urged to show the great value of relics which, indeed, if they were even void of all value, would still be replete with mournful interest. Such are ancient coins and medals, pieces of furniture and warlike weapons, cameos, busts and statues, tombs and monuments, vases and urns and tools, lamps and foundation-stones. At every new discovery, the learned are busy in extracting some new light for the benefit of archæological science.

It is to be regretted that the museums of the modern world contain a far smaller quantity of ancient relics in gold and silver than in bronze. This, we say, is to be regretted, not on account of the intrinsic preciousness of the nobler metals, but because, in the first place, they preserve their perfection far longer than the others; and secondly, because works in gold and silver have in all ages been generally intrusted to the ablest artists. Thus we should have had the best productions—and these in the best preservation. No doubt the old world left behind it many inestimable works of art executed in the precious metals, which at various subsequent periods were melted down to minister to the rude and barbarous avarice of persons who knew not that the manufacture was far more precious than the material. This, coupled with the fact that bronze even originally must have been the substance in which a majority of the designs of art were carried out, explains the rarity of gold and silver antiquities.

In 1830, on the 21st of March, a farmer of the name of Prosper Taurin was tilling a field which he had just bought in the hamlet of Villeret, when an unexpected obstacle nearly broke the share of the plough. A similar occurrence had already befallen some labourers who, before him, had guided the plough in that field; but they had contented themselves with making the circuit of the obstacle. Taurin, however, was curious to ascertain the nature of the impediment; and, borrowing a pickaxe from a workman who was at his toil in the neighbourhood, he used it to remove what he had concluded must be some sort of stone. What was his surprise and delight, when, six feet below the surface, he discovered a Roman tile which covered a real hiding-hole, formed of several other tiles; and in the hollow a considerable quantity of objects in silver; vases, cups, busts, statues, the whole more than fifty pounds in weight,—that is to say, worth nearly three hundred pounds sterling, in the intrinsic value of the materials alone. These objects had suffered more in a few seconds from three or four strokes of a pickaxe, than from their one thousand five hundred years' burial in that hiding-place.

M. Taurin had no conception of the enormous value which artistic and antiquarian interest imparted to these remains; and, but for the advice of a relation better educated than himself, he would probably have sold the whole to a jeweller for a merely nominal price; and the jeweller, it is equally probable, would have soon thrown the disburied treasure into his melting-pot. A similar event had already happened at Limoges. Indeed, in every country once conquered or visited by the Romans, the ignorance of the ordinary discoverers of treasures has occasioned the irreparable and final loss of some of the most precious relics confided in ancient times to the bosom of the earth.

In the present instance, M. Taurin sold his trover for something under eight hundred pounds sterling to the National



SILVER VASE, DISCOVERED AT VILLERET, FRANCE.

Library of France, which had thus a remarkably cheap bargain.

The objects contained in the "lot" were seventy in number, all in silver, and belonging to various eras, but none of them dating further back than the time of the first Cæsars. It is supposed that Zenodorus, a skilful, and, in his day, renowned artist, whose name Pliny has preserved to us as that of one settled in Ga and there flourishing, was the designer and worker of several them, and perhaps of the vase of which we give so fine a engraving.

Of that vase the side which the artist has exhibited is r markable for the elegance of the whole design as well as for th

animation of the figures represented. The scene illustrates an incident in the Trojan War.

Achilles, in a sitting posture, contemplates with grief the dead naked body of Patroclus. Ulysses with his conic head-dress is behind. The Myrmidons, spear in hand, are near. Those with the Phrygian cap are Trojans. The whole is a fine specimen of antique art, of which every sample, however much the opposite of fine, would still, at the present day, as throwing a light on so many subjects, be interesting, if not valuable.

THOMAS BRITTON, "THE MUSICAL SMALL-COAL MAN."



In passing through some of the by-streets and lanes of the metropolis, about a century and a half ago, you might have seen just before you a man clad in a long blue frock, and a broad-brimmed slouching hat, with a sooty-looking sack slung over his left shoulder, and a half-peck measure under his arm; and you would have heard him every two or three minutes, calling out, in a somewhat musical tone,—"Small coal, O! Small coal, O!" You might have seen this same man stopping at every music-sellers, or book-stall, eagerly examining those articles that appeared the most ancient, and occasionally making purchases. When you came up to him, though you might have admired his frank, open countenance, you could hardly have supposed that you saw a passionate admirer of choice music, having concerts in his own house, at which Handel assisted, and the nobility and gentry attended. You would scarcely have set him down for a diligent hunter of black-letter lore, the occasional associate of the principal bibliomaniacs of the day. Least of all would you have supposed that you saw a profound student of the Rosicrucian philosophy, who spent hours in a laboratory of his own construction, fondly hoping to be possessed some day of the grand secret, hitherto hid from the children of men, or transmuting the inferior metals into gold. And yet, in meeting Thomas Britton,—well-known at that time in the streets of London as "the musical small-coal man,"—you would have met such a prodigy.

Thomas Britton was born at Higham Ferrers, Northamptonshire, in the year 1654. His father apprenticed him in London to a man who dealt in small-coal,—a kind of charcoal made from the smaller branches and twigs of trees, and used for lighting fires, and by certain artificers, but the use of which has been long superseded by the introduction of "patent fire-woods," and the manufacture of coal-coke. When out of his time, Britton rented a stable near the Priory of St. John of Jerusalem, Clerkenwell; which he converted into a dwelling-house, with a shed in which to deposit his stock-in-trade. A passion for music was very early developed; and this he indulged at intervals, as a rich source of recreation, availing himself of every musical work that he thought would be of use to him, and exercising much self-denial in order to obtain those which were expensive. By degrees he acquired a good set of instruments, and a valuable musical library; and having formed also a musical acquaintance, he de-

termined upon fitting up a loft which ran over his business premises, as a music-room. Here he commenced a series of music-meetings. Being an industrious, thrifty man, he never neglected his business. But though in the morning he might be seen in the streets, crying small coal, and serving it out in small portions; in the evening he often conducted concerts in his room; and the attraction of these became so great, that men of fashion, and well-dressed ladies of high rank, were often seen climbing his loft by means of a ladder, to enjoy the entertainment provided for them by "the musical small-coal man,"—Handel and Pepusch not disdaining to take part in these performances.

In addition to his passion for music, Britton formed a strong attachment to black-letter lore, and soon became so deeply read in it as to acquire considerable fame. He was invited to the weekly meetings of a society of black-letter literati, numbering among its members several noblemen; these meetings he delighted to attend; and as he never neglected his daily calling, nor aimed at appearing greater than he really was, he frequently went in his check shirt, and, on some occasions, left his sack and measure at the door, entered the apartment in common with the other members, and produced books which he had collected from stalls and shops in blind alleys in the course of the day; by turns giving and receiving interesting information.

Among Britton's near neighbours was a Dr. Theophilus Garencieres, a French physician, a native of Paris, who had abjured the Romish faith, and, quitting a respectable practice at Caen in Normandy, had settled in this country. This doctor was a good linguist, and had published an English translation of the prophecies of Nostradamus, a celebrated French empiric of the sixteenth century. He published also some works on chemistry. Britton formed an acquaintance with this gentleman; and having frequently conversed with him on the subject of chemistry, and especially on the truth of the Rosicrucian science, he turned his attention to the study of alchemy, and constructed for his own use a moveable laboratory. He often engaged, with his learned neighbour, in chemical experiments, but with what success does not exactly appear. The doctor himself, so far from discovering "the philosopher's stone," died in great distress in 1680.

Britton died, in the sixtieth year of his age, September 14, 1714. His death was the result of one of those worse than silly tricks, called "practical jokes." He was a member of a club into which, on one occasion, a ventriloquist was introduced. This man,—in an apparently supernatural voice proceeding from a distance,—pronounced these words:—"Thomas Britton! go home; for thou shalt die!"—commanding him at the same time to fall upon his knees, and repeat the Lord's prayer. The poor honest man immediately did so, supposing the voice to have proceeded from an angel. He was so terrified, that though the trick was explained to him, he went home depressed in spirits, took to his bed, and died a few days afterwards. He was buried in the cemetery of Clerkenwell Church. After his death, his library, which was considerable, and contained many curious articles, together with his musical collections, were sold by public auction, and realised a handsome sum.

One of his friends, Woollaston the painter, prevailed upon him to sit twice for his portrait; one of these is in the British Museum. In one he is represented as tuning a harpsichord, with a violin banging on the side of the room. Under a print of him, by Johnson, are these lines, from the pen of Matthew Prior:—

> "Though doom'd to small-coal, yet to arts allied;
> Rich without wealth, and famous without pride.
> Music's best patron; judge of books and men;
> Beloved and honour'd by Apollo's train.
> In Greece and Rome sure never did appear
> So bright a genius in so dark a sphere."

Our engraving is from one of the paintings by Woollaston, underneath which these lines were inscribed:—

> "Though mean thy Rank, yet in thy humble Cell,
> Did gentle Peace, and Arts unpurchas'd dwell;
> Well pleas'd, Apollo thither led his Train;
> And Musick warbled in her sweetest Strain.
> Cyllenius so, as fables tell, and Jove,
> Came willing guests to poor Philemon's grove.
> Let useless Pomp behold, and blush to find
> So low a Station, such a liberal Mind."

TREES,

POETICALLY AND NATIONALLY REGARDED.

No general reader can fail to have observed the important use which the poets have made of trees by way of illustration. Homer frequently embellishes his subjects with references to them; and no passage in the "Iliad" is more beautiful, than the one where, in imitation of Musæus, he compares the falling of leaves and shrubs to the fall and renovation of great and ancient families. Illustrations of this class are frequent in the sacred writings. The author of "Ecclesiasticus" says, "I am exalted like a cedar in Libanus, and as a cypress-tree upon the mountain of Hermon. I was exalted like a palm-tree in Engeddi, and as a rose-plant in Jericho; as a fair olive in a pleasant field, and grew up as a plane-tree by the water; as a turpentine-tree I stretched out my branches, and my branches are the branches of honour and grace; as a vine brought I forth pleasant savour, and my flowers are the fruits of honour and victory." In the Psalms, in a fine vein of allegory, the vine-tree is made to represent the people of Israel: "Thou hast brought a vine out of Egypt; thou hast cut out the heathen and planted it. Thou didst cause it to take deep root, and it filled the land. The hills were covered with its shadow, and the boughs thereof were like the goodly cedars."

In Ossian, how beautiful is the following passage of Malvina's lamentation for Oscar:—"I was a lovely tree in thy presence, Oscar, with all my branches round me; but thy death came like a blast from the desert, and laid my green head low; the spring returned with its showers, but no green leaf of mine arose." Again, when old and weary, blind, and almost destitute of friends, Ossian compares himself to a tree that is withered and decayed: "But Ossian is a tree that is withered; its branches are blasted and bare; no green leaves cover its boughs: from its trunk no young shoot is seen to spring; the breeze whistles in its gray moss; the blast shakes its head of age; the storm will soon overturn it, and strew all its dry branches with thee, O Dermid, and with all the rest of the mighty dead, in the green winding vale of Cona."

That traveller esteemed himself happy, who first carried into Palestine the rose of Jericho from the plains of Arabia; and many of the Roman nobility were gratified, in a high degree, with having transplanted exotic plants and trees into the orchard of Italy. Pompey introduced the ebony on the day of his triumph over Mithridates. Vespasian transplanted the balm of Syria, and Lucullus the Pontian cherry, Auger de Busbech brought the lilac from Constantinople. Hercules introduced the orange into Spain. Verton brought the mulberry into England. And so great is the love of nations for particular trees, that a traveller never fails to celebrate those by which his native province is distinguished. Thus the native of Hampshire prides himself upon his oaks; the Burgundian boasts of his vines, and the Herefordshire farmer of his apples. Normandy is proud of her pears; Provence of her olives; and Dauphiné of her mulberries; while the Maltese are in love with their own orange-trees. Norway and Sweden celebrate their pines; Syria her palms; and, since they have few other trees of which they can boast, Lincoln celebrates her alders, and Cambridge her willows! The paphians were proud of their myrtles; the Lesbians of their vines; Rhodes loudly proclaimed the superior charms of her rose-trees; Idumea of her balsams; Media of her citrons; and India of her ebony. The Druses boast of their mulberries; Gaza of her dates and pomegranates; Switzerland of her lime-trees; Beyrout of her figs and bananas; Damascus of her plums; Inconnaugan of its birch, and Inchowlaig of its yews. The inhabitants of Jamaica never cease to praise the beauty of their manchenillas; while those of Tobasco are as vain of their cocoas. The natives of Madeira, whose spring and autumn reign together, take pride in their cedars and citrons; those of Antigua of their tamarinds, while they esteem their mammee sappota to be equal to any oak in Europe, and their mangoes to be superior to any tree in America. Equally partial are the inhabitants of the plains of Tahiti to their peculiar species of fan palm; and those of Kous to their odoriferous orchards. The Hispaniolans, with the highest degree of pride, challenge any one of the trees of Europe or Asia to equal the height of their cabbage-trees—towering to an altitude of 270 feet. Even the people of the Bay of Honduras con-

ceive their logwood to be superior to any trees in the world; while the Huron savages inquire of Europeans whether they have anything to compare with their immense cedar-trees.

THE ROUGH HOME AT HORN, NEAR HAMBURG.

In England "Ragged Schools" are now universally known, though as yet they are only partially established. The benevolent efforts, however, in which they originated and to which they have led, have occasioned the laying open of a sore in the social body very grievous and very alarming. At the bottom of the lowest stratum of English society there is a thick layer of foulness, which, if not removed, must produce most deleterious consequences. Only by education can that ignorance, vice, and depravity be put away. Whence is to come the education that will sweep our streets? This is the problem that now presses for a solution. It is a problem of fearful aspect. It is a problem of growing importance. Perhaps some aid towards a practical solution may be afforded, if we report that which Christian benevolence has achieved in the Rough Home (*Das Rauhe Haus*) at Horn, near Hamburg.

The Rough Home is a ragged school on a large scale. It is a ragged school, or rather a system of ragged schools, on a well-developed plan. The founders of the Rough Home were Christian men of all ages and conditions, who formed themselves into a society, in order to visit the poor in their homes, and, while ministering to their bodily necessities, offer them spiritual instruction and solace. This was a noble aim. Undertaken from Christian motives, and executed in a Christian spirit,—a spirit that is of warm and tender sympathy,—the mission led to most desirable results.

At a meeting of the members of this society, held on the 8th of October, 1832, a wish was expressed for the foundation of an establishment which should serve as a house of refuge for destitute and depraved children, and such as were likely to become so. If this was a good it was also a bold idea. Whence were the means to come? The projectors abounded not in silver and gold. But having a good aim and possessing benevolent hearts, they made or found, or rather both made and found, a way to secure their object.

A stranger who knew nothing of their plan, put at the disposal of a member of the union a hundred dollars, which he intended for some charitable purpose. This small sum was the capital of the new establishment. The receipts of the money had to be openly attested. Where was the person whose name would be a guarantee to the public that it would be properly expended? A member of the senate, by name Hudtwalker, undertook the responsibility. The Rough Home in consequence received "a habitation and a name." The same person was executor under a will by which 17,500 marks were bequeathed for a house of refuge. He appropriated the sum to the Rough Home; though the actual payment of it was delayed by legal opposition. Meanwhile a periodical, the *Bergedorf Messenger*, was established in order to make known the objects of the institution, and to solicit support. The first Number, issued in January 1833, had a surprising influence. A lady presented a hundred marks; young women united together with a view of collecting small contributions on its behalf; a working shoemaker gave all his savings; similar gifts were bestowed by an unknown hand. The Syndic Sieveking gave a dilapidated house, which he had put into repair.

The last present removed a great obstacle. Here was money and here was a home; but where was the mind that could make these outward things accomplish a great inward work? The mind too was ready. In a young divinity student, named J. H. Wichern, all saw "the right man." To the office Wichern had a call. Together with his mother, he entered the house on November 1, 1833, and immediately received three boys under his care. By the end of the year the number had increased to twelve. In the course of the next year the boys took down and removed a wall which enclosed the building, and so gave to the world a visible proof that the Rough Home was a house of free love, an establishment which did not rust, and could not endure any mere material restraint. The fame of the school grew and spread. Applications for admission became numerous. Without more room those applications must be rejected. The boys who pulled down, could also build up. With one heart they applied to the task, and constructed a new house, called from the style of the architecture, "The Swiss House." Happy day! it came at last. On the 20th of July, 1834, "Swiss House" was consecrated and opened. A new family of twelve was formed, and at its head was placed a Swiss, named Joseph Baumgartner. By May, 1835, two more houses were set apart for the work of moral rescue. As yet boys only had been cared for. Wisely was it resolved to extend the succour to girls. A new home was founded. This home was to be preparatory, a sort of stepping stone from the slough of the streets to the order and comfort of the Rough Home. For this purpose boys as well as girls were admitted; and the rather because it was intended to serve as a school of practical housewifery a woman's world, where girls could be trained for service and for cottage duties, becoming instead of wretched street-walkers, useful servants, and happy mothers. The aim; a very wise and a very high aim; the chief aim of the establishment is declared in the name given to it by Wichern, who called it "Das Mutterhaus," *the mother-house*,—that is, a training school for mothers, a school for educating poor destitute girls so as to make them good mothers. This, we repeat, was a noble aim. This method of assailing evil at its centre, and promoting good from its source, is very admirable and must have proved very effectual.

On the 29th of October, 1835, the Mother-house was set apart for its service by the solemnities of public worship. Twelve girls and thirty-three boys formed the establishment.

The originator of these homes, Wichern, had from the first recognised in labour an effectual means of moral renovation and progress. Labour therefore formed an essential part of their routine. Out of a small germ that labour soon produced shoots, branches and fruit. During the first winter the inmates busied themselves chiefly with hand labour,—such as cooking, washing, and other domestic duties; but they also laboured in the garden, at the walls, and on the public ways. Bad and severe weather, however, often kept them confined within doors for hours and even days. Then sufficient employment was not to be had. What was to be done? Boys have eyes, and their minds are inventive. The boys in the Mother-house seized an old Canadian poplar that grew in the garden, and with a rusty saw and a large knife, the only tools they could command, converted the tree into slippers. Their labours gradually extended themselves. They formed a rope-yard; they set up a joiner's bench; they built an oven; they fitted up a room for tailors; always keeping utility in view. At the same time agriculture went forwards; the country around began to smile, and the institution enjoyed the sweet fruits of industry. The year 1839 was a season of rejoicing in the Rough Home. American bounty supplied means for realising a wish long entertained, and a chapel was built. This chapel contained besides a house of prayer, dwellings, schools, and a library. In all the requisite labours the scholars took part. Without foreign aid, solely by the scholars and the teachers of the establishment, was what was appropriately called "The Bee-hive" constructed. In ensuing years more land was purchased, and a printing-house, as well as another girls' school, was erected. Five-and-twenty friends lent a small sum for the outfit of the printing-house, and on the 2nd of February, of the year 1841, appeared the first specimen of printing by the Rough Home. It was the 23rd Psalm. How appropriate the words, "The Lord is my shepherd, I shall not want!" In two years the printing establishment had so grown as to afford employment for twenty persons. In order to obtain resources for other buildings and establishments, Wichern appealed to public benevolence, and received a very satisfactory reply. He built fishing-huts; a place for bookbinding; a place for lithography; an agricultural school; a public washhouse; and a cabin for herdsmen. In 1851 a boarding-school and general seminary was designed and begun; which probably is by this time ready to receive pupils. In 1850 Wichern built a house for himself, which is so situated as to give him a residence in the centre of these several establishments, where he dwells as a father in the midst of his children; surrounded by happy faces and pure hearts, and surrounded also by useful workshops and institutions,—all, for the most part, the achievements and the rewards of his own wise, steady, and persevering benevolence.

THE LADIES' DEPARTMENT.

SHORT PURSE.

MATERIALS.—Four skeins of blue purse twist, three skeins of white ditto; one very handsome silk tassel to correspond; one yard of silk twist; and two slides covered with blue and white silk.

With the blue silk make a chain of 8 stitches, and close it into a round.

2nd round (all s.c. until further orders): Increase to 16 stitches in the round.

3rd: Increase to 24 stitches in the round.

4th: × 1 white, 2 blue, × 8 times.

5th: × 2 white on 1 white, 2 blue on 2 blue, × 8 times.

6th: × 2 white on 1, 1 white on 1, 2 blue on 2 blue, × 8 times.

7th: × 4 white over three white, 2 blue on 1 blue, × 8 times.

8th: × 5 white over 4, 2 blue over blue, × 8 times.

9th: × 5 white over 5, 3 blue over 2, × 8 times.

10th: × 6 white over 5, 3 blue over blue, × 8 times.

11th: × 6 white over 6, 4 blue over 3, × 8 times.

12th: × 6 white over 6, 5 blue over 4, × 8 times.

13th: × 6 white over 6, 6 blue over 5, × 8 times.

14th: × 1 blue over the first white, 4 white, 7 more blue, × 8 times.

15th: All blue.

16th: × 1 white, 12 blue, × 8 times.

17th: × 1 white, 12 blue over 11, 1 white, × 8 times.

18th: × 1 blue, 3 white, 8 blue, 2 white, × 8 times.

19th: × 2 white, 1 blue, 2 white, 6 blue, 2 white, 1 blue, × 8 times.

20th: × 1 white, 1 blue, 1 white, 1 blue, 1 white, 6 blue, 2 white, 1 blue, × 8 times.

21st: × 2 white, 1 blue, 2 white, 6 blue, 1 white, 2 blue, × 8 times.

22nd: × 1 blue, 3 white, 10 blue, × 8 times.

23rd and 24th All blue.

25th: × 8 blue, 1 white, 5 blue, × 8 times.

26th: × 8 blue, 2 white, 4 blue, × 8 times.

27th: × 5 blue, 3 white, 1 blue, 2 white, 3 blue, × 8 times.

28th: × 4 blue, 2 white, 1 blue, 2 white, 1 blue, 2 white, 2 blue, × 8 times.

29th: × 4 blue, * 1 white, 1 blue, * 3 times; 2 white, 2 blue, × 8 times.

30th: × 4 blue, 2 white, 1 blue, 2 white, 2 blue, 1 white, 2 blue, × 8 times.

31st: × 5 blue, 3 white, 6 blue, × 8 times.

32nd and 33rd: All blue.

Repeat from the 16th to the 33rd rounds, inclusive of both. Then two rounds of plain white.

Now, with the blue, work on the last round of blue, on the wrong or inner side of the purse, thus:—× 1 d.c., 1 ch., miss 1, × all round.

2nd: × d.c. under the chain, 1 ch., miss the d.c., × all round. Repeat this round ten times more.

With the white silk work on the last, × 5 d.c. under chain, 1 ch., × all round.

Finish by doing a round with the blue, of s.c. in every stitch.

Sew the tassel at the bottom of the purse, and run two strings of cord in the top round of open crochet. Conceal the joins of the cord by passing on the small slides.



SHORT PURSE.

EDGING IN FRIVOLITE.

(*For the Frill of the Victoria-lace Chemisette.*)

MATERIALS.—Tatting Cotton, No. 3. Boulton's Steel Skuttle, and Tatting-pin.

1st loop: × 4 double stitches, picot 1, × 5 times, 4 double stitches; draw up the loop.

2nd: 4 double stitches; join to the last picot of preceding loop, × 4 double stitches, 1 picot, × 4 times; 4 double stitches, and draw up the loop.

Repeat this loop as often as may be required. About three quarters of a yard of tatting will be enough for the frill. Of course, the lace should be the same length.

Sew it on; whip the edge, and put the frill on rather full to the chemisette, covering the seam with a single row of braid.

(For instructions in tatting, see the ILLUSTRATED EXHIBITOR, No. 29.)

LADY'S SAC-DE-NUIT.

BERLIN WOOL.

MATERIALS.—1 oz. of black Berlin wool, 4 oz. of rich emerald-green and brilliant scarlet, 1¼ oz. of rich purple, 4 skeins of orange filoselle, 2 oz. of jet-black beads, and 2 oz. of chalk-white ditto, a size *larger* than seed beads; a piece of French cotton canvass, No. 18, three quarters of a yard long, and half a yard wide. Two reels of strong cotton will also be necessary, one of which must match the green wool, and the other the red.

Our reason for naming the size of the French canvass to be employed is, that such a size is requisite, in order that such bead may cover two threads each way. If the canvass be coarser, the beads will lose their effect; if finer, they will be too crowded.

In the pattern we have given, each side consists of five broad stripes, with narrow ones intervening; and this will be found quite sufficiently large for ordinary purposes. If it be thought desirable that it should be larger, two stripes may be added.

The pattern is the same in all the broad stripes, being formed

in beads, and the ground being filled in with wool. In the two outer stripes, and the one in the centre, the ground is scarlet and the beads are black; the other wreaths are white on a green ground. Each stripe is 19 cross-stitches wide, the beads each occupying the space of a cross-stitch.

1st row: (Reckoning always from the right hand.) 8 wool, 6 beads, 5 wool.

2nd: 7 wool, 1 bead, 1 wool, 3 bead, 7 wool.

3rd: 3 wool, 4 beads, 2 wool, 5 beads, 5 wool.

4th: 2 wool, 5 beads, 2 wool, 2 beads, 1 wool, 3 beads, 4 wool.

5th: 4 wool, 3 beads, 1 wool, 1 bead, 1 wool, 1 bead, 1 wool, 3 beads, 4 wool.

6th: 2 wool, 5 beads, 1 wool, 1 bead, 5 wool, 1 bead, 4 wool.

7th: 1 wool, 3 beads, 1 wool, 1 bead, 2 wool, 1 bead, 10 wool.

8th: 1 wool, 3 beads, 1 wool, 1 bead, 2 wool, 2 beads, 9 wool.

9th: 1 wool, 1 bead, 5 wool, 1 bead, 1 wool, 1 bead, 3 wool, 2 beads, 4 wool.

10th: 6 wool, 1 bead, 2 wool, 2 beads, 1 wool, 3 beads, 4 wool.

11th: 10 wool, 1 bead, 1 wool, 2 beads, 5 wool.

12th: 10 wool, 7 beads, 2 wool.

13th: 6 wool, 2 beads, 2 wool, 8 beads, 1 wool.

14th: 6 wool, 3 beads, 1 wool, 7 beads, 2 wool.

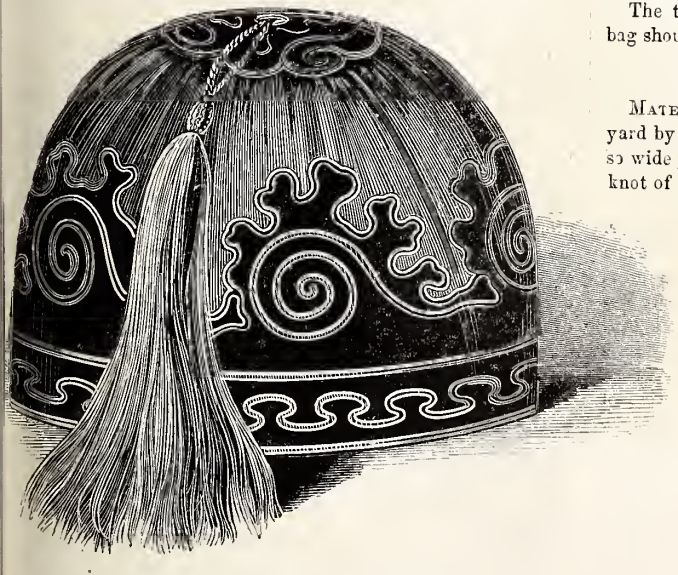
15th: 3 wool, 3 beads, 1 wool, 2 beads, 1 wool, 1 bead, 1 wool, 2 beads, 5 wool.

16th: 2 wool, 7 beads, 1 wool, 1 bead, 1 wool, 3 beads, 4 wool.

17th: 3 wool, 8 beads, 2 wool, 2 beads, 4 wool.

18th: 7 wool, 4 beads, 8 wool.

19th: 5 wool, 4 beads, 1 wool, 1 bead, 8 wool.



GREEK LOUNGING-CAP, IN APPLIQUE.

20th: 6 wool, 2 beads, 1 wool, 5 beads, 5 wool.

Repeat these 20 rows about five times, and 10 rows over for the depth of the bag. Allow 18 threads of canvass between every two stripes, and also at the edges. Work a single line of cross-stitch on each side of every stripe, and also beyond the two outer ones, allowing 14 threads, and then doing another row of cross-stitch at the sides and end of the bag. Between the black lines do a succession of points with the purple wool, by taking one stitch over two threads, the next over three, and so on until it is



LADY'S SAC-DE-NUIT.

taken over 7 (the half of the fourteen), when diminish again to 2 Continue to increase and diminish throughout the line; then on the opposite side, so that the points meet. The diamond-shaped spaces are filled with orange filoselle.

The two sides of the bag are to be worked separately, and the bag should be made up by a carpet-bag manufacturer.

GREEK LOUNGING-CAP, IN APPLIQUE.

MATERIALS.—A piece of the finest cloth seven-eighths of a yard by 8 inches; velvet the same shade; as long, but not quite so wide; 2 skeins of coarse gold thread of the best quality; and a knot of Albert braid. Tassel to match.

The best colour for this lounging-cap is a rich coffee-brown; the braid should match with it. The velvet should have a very short pile, and be of the best quality. The design, which is given with great accuracy in the engraving, is to be so much enlarged that *five* patterns will go round the head. The length of cloth is sufficient to allow of the crown piece being cut from the end of it. The design being drawn on thick writing-paper, and the outlines perforated with a needle, the velvet is to be marked in the usual way, and cut out at the edges. The back is then to be glued with *very* thin glue, laid on the cloth, and pressed down sufficiently to hold it in its place. It will be seen, by the engraving, that all the lower part of the cap is of velvet on the cloth.

It is to be worked in the same way as the slipper already given. The cloth is gathered in at the edge, and sewed full to the crown.

Perforated patterns, technically called *pounced patterns*, may be purchased anywhere for a trifle, by those who are not sufficiently good artists to enlarge patterns for themselves.

POPULAR ERRORS, PREJUDICES, AND SUPERSTITIONS.

CHAPTER II.

A BELIEF in fortune-telling is certainly less pardonable than a belief in the significance of dreams. Dreams are in themselves so mysterious, and the nature of them so little understood, that to say nothing of the special and exceptional cases we have before alluded to as told in Scripture, mankind may well be excused for looking upon them in a supernatural light. But why that old woman, just because she wears a red cloak and hood, and belongs to a tribe of houseless wanderers, or that other old woman because she is all wrinkled with age, unlearned and ignorant, and lives in a garret alone with a black tom cat—why either of these we say should be supposed to possess the power of raising the veil which Divine mercy has drawn over the future, we cannot for the life of us make out. Why should a pack of cards, mere bits of paper, specimens of block printing—why should they, when shuffled and spread out in a peculiar manner, form an open book in which mankind may read his destiny? The lines on the palm of the hand are formed by the peculiar constitution of the muscles, nerves, or skin. They belong simply to anatomy. Why, then, consider them as hieroglyphs—fate's registry of coming good or evil? The stars, too, and the planets—those innumerable suns and worlds whose motions, real or apparent, obey only the immutable laws of gravitation. Are these vast suns and systems to be taken by arrogant man as merely bright dots to mark out his map of life—a million worlds to form the landmarks of a single individual's short voyage through the sea of time?

Our readers may perhaps object to our naming these as superstitions of the present day, and say, at any rate, astrology must be numbered with the past. Not so. We know a well-to-do retired tradesman at this moment, who has his own, his wife's, and his family's "horoscopes" all regularly drawn out. Ay, and he believes in them too, and periodically consults them. Is he the only remaining astrologer? From the bottom of our heart we believe not! Of those who have resort to gipsies, conjurers, or cards to tell their fortune, the numbers are, however, far more large. It is generally done, we admit, under protest "merely for the fun of the thing;" they are ashamed to acknowledge their belief; and yet how many have we seen—especially young girls—whose spirits have been exhilarated or depressed according as the gipsy promised good or evil fortune, or the cards announced that a "fair man" would bring "good fortune" to "the house," or otherwise. We emphatically declare these trials are *not* made for mere fun. Examine well your motives, you who try them. You will find, depend upon it, however deeply you may keep it down, a lurking feeling at the bottom that "there *may* be something in it." Reason, then, with yourself, and ask your judgment *how* this something can be in it; and if you do succeed in conquering this last remnant of superstition, then no longer for the sake of "fun" encourage a set of worthless impostors, nor by your example lead those less enlightened than yourself to put their faith in fortune-telling.

There is another class of errors to which we shall now refer. We mean those for which a want of knowledge may in some measure be pleaded as an excuse. Before quitting the gross absurdities we have enumerated above, let us once more exhort our readers to do all they can to sweep away these cobwebs from the temple of their reason. Put these omens to the proof, and depend on it they will confess themselves cheats. Commence undertakings on a Friday; never mind the case of the shipbuilder we mentioned,—that was simply and solely a coincidence.* Walk under ladders, only taking care there is nothing to fall down upon you;—your prosperity will be quite as great. Never mind spilling salt. If you do it, do not throw it over your shoulder, lest it might fall into the gooseberry tart upon the sideboard, or enter the servant's eye who stands behind your chair. Never go without dinner because you would be the thirteenth to sit down. It would be a useless fast. Do, in fact, everything that omens tell you is "unlucky," and then when you find that things go on much the same as ever, then answer those who speak of dreams "come true" and frightful omens realised, as Shakspeare makes the fiery Percy answer the braggart, Owen Glendower, when he says,—

> "At my birth
> The frame and huge foundation of the earth
> Shaked like a coward.
> "*Hotspur.* Why, so it would have done
> At the same season if your mother's cat
> Had kitten'd, though yourself had ne'er been born."

Errors and Prejudices in Natural History.

The popular belief as to the habits and instincts of different animals abounds in errors and prejudices, some of which tend to raise the objects of them into an undue amount of esteem, while others, and perhaps the greater number of them have an opposite tendency, and cause the unhappy creatures to whom they refer to endure scorn, and not unfrequently ill-usage, which they are far from meriting.

Some of these we are now about to notice.

THE ANT.—This little insect is decidedly favoured by poets and sentimental writers. He has acquired a fame to which he has no claim whatever. The ant is generally admitted to be the perfect model and very embodiment as it were of foresight and prudence. That the ant is an industrious and a hard-working little fellow we fully grant, but here his claims to praise must cease. As to the foresight with which he is said to garner up a store of food on which to live through the winter, it is simply an error. The ant lays by no provision for the winter, and for the very excellent reason that he does not require it; pattern of industry and prudence as he is, he is sufficiently a sluggard to take a good long nap after his summer toils, passing the whole of the winter in a state of torpidity. It has been said that bees live under a monarchy, and ants under a republic; this is, however, not quite correct, the form of government in both communities is very similar; the only difference is that, whereas the bees have but one queen, the ants have several, so that their government partakes more of an oligarchical than a republican form. We have spoken of the ant as being favoured by prejudice; but, poor little fellow, this is much more than counterbalanced by the unjust and irrational persecution of which he is the object. He is looked upon by gardeners as an enemy. This is not only unjust but absolutely ungrateful; for when they overrun the fruit-trees of a garden, so far from damaging them, the ants actually benefit them, by freeing them from the little insects which consume their sap, and thus destroy the fruit.

THE ASS.—We will not here go into the question of whether the ass bore the sign of the cross upon his back prior to the entry of Christ into Jerusalem upon one of these despised quadrupeds or whether this mark, which all donkeys of the present time exhibit, be, as it is generally said to be, a miraculous memento of that event. This item of popular belief we will pass over, lest any of our readers should suspect us of encroaching on forbidden ground, and, in our anxiety to combat error, denying miracles. Besides, the question is not important; what we wish to do is to expose a prejudice of far more moment, as it is a most unjust and cruel one. We allude to the false idea which mankind has formed of this most useful animal; which idea is the cause of, and the excuse for, the ill-treatment the poor donkey almost always has to suffer. The ass is said to be stupid, untractable, restive and vindictive. He is no such thing. Treat him well, and you have proof of it. This error consists mainly in the substitution of cause for effect; it is the ill-treatment of the donkey by the proud master of creation that occasions any stubbornness he may exhibit, and not the bad qualities of the donkey which call for this ill-usage.

THE BEAVER.—In some parts of the world beavers are hunted not so much for the sake of their fur, but for their musk (called *castoreum*), which bears a very high price, and is used in medicine. This castoreum, which is an oily fluid of a pale yellow colour, is contained in two vessels situated at the hinder part of the animal's body. Ancient naturalists, and indeed some modern ones also, pretend that the beaver, when chased, voluntarily bites

* The dreadful truth never struck us till this moment. We have, without thinking of it, actually commenced this very series we are now engaged on *upon a Friday!* Will this circumstance counteract any good we might otherwise hope they would effect?

off these two vessels from his body, and leaves them for his pursuer. This is an error to be added to the numerous list of those to which our insatiable desire for the marvellous has given birth. It is not enough that the beaver is known to be a skilful architect, he must be also made a surgeon of. Another error in regard to these truly wonderful animals refers to their mode of building their houses. It is generally supposed that the beaver erects the woodwork of his habitation first, and then plasters it over with mud, using his tail as a trowel. This is not the case. The whole of their houses are from the foundation one mass of mud mixed with bits of wood, and when they can be procured, with stones. What has given rise to this error, is the habit beavers have of slapping their houses with their tails as they walk round them. But this is only a habit, and even when tamed the beavers constantly do the same, slapping everything around them, especially when they are startled.

Bees.—A host of erroneous notions were formerly entertained concerning these little creatures. Thanks, however, to the use of glass hives, their habits have been closely observed and the truth ascertained. A swarm contains three kinds of bees, the drones or males, the workers, and the queen. The drones possess no sting, while both the workers and the queen bee are furnished with this weapon of self-defence. The drones do no work, their task being only to propagate the species. Some observers say, that after having accomplished their mission in the hive, they are killed by the working bees; whether this is so or not, it is certain that they die almost immediately. Though bees have been so much studied as to their nature and habits, there are still some errors currently believed in. One is, that the queen bee has no sting; this is untrue, as we have said before. It is not true that the bee leaves its sting in the wound, and that the act of stinging costs him his life. The poison of a bee's sting, like that of a viper's, consists of a liquid which penetrates into the wound laid open by the sting. It has even been said—so ready is mankind to fancy or believe in wonders—that the bee stings people of bad character more readily than others. To mention this absurd idea is to refute it. With more show of reason, it has been said that bees destroy the fructifying dust necessary to the propagation of the plants, but this is none the less an error; for it appears, on the contrary, they spread this dust upon the pistils while introducing themselves into the flower, and thereby aid in the work of fructification.

The Cat.—This unhappy animal is a great sufferer by popular prejudice. The cat, we are told, is ungrateful! perfidious! traitorous! No such thing. The fact is, the cat, in its domesticated state, has preserved a noble independence of character, and will not fawn upon its egotistical master—man. Another error very generally believed in is, that a cat left in the bedroom where a child is asleep, will *suck the child's breath!* This is almost too absurd a fancy to reason about. We would simply ask, by what wondrous machinery in the cat's organisation can this extraordinary pneumatic feat be accomplished? Certainly the somewhat diminutive mouth of the animal would seem a badly-formed vacuum apparatus. But this error is not so injurious to cats as one or two others we have yet to name. At the worst it only causes them to be shut out from bedrooms, and cats can certainly do as well elsewhere. A far more serious error is the belief that cats, on falling from any height, no matter how great, always come down upon their feet. More than one unfortunate cat has fallen a victim to this exaggerated idea of their agility, in having been thrown out of window by experimental philosophers who were anxious to verify the fact. It is said that on the approach of a severe winter the fur of cats and also of hares becomes thicker. This would certainly be a very delicate attention of nature, but we would not advise any one to trust this kind of almanac. The cat is also made to serve the purpose of a barometer. When a cat rubs its paws over its ears, elderly ladies will tell you it is a sign of rain. Ungallant though it may be to contradict this statement, truth still compels us to do so. A cat scratching its ears is a sign of nothing else than that the ears are itching, or, otherwise, that the cat is washing them. There are several other errors connected with cats, such as the belief that all cats have, when born, a small worm in their tail, which must be cut out! that a cat has nine lives, &c., which are simply ridiculous.

The Hog.—This is one of the numerous animals calumniated by popular prejudice. It is not true that the hog loves filth, and is dirty by choice. He requires a frequent use of the cold bath; and in the absence of clean water he wallows in the ditch. The true hog (in the vulgar acceptation of the term) is the swineherd who does not change his water and his litter sufficiently often. It is said that pigs can see the wind! This, however, must really be a joke. We cannot bring ourselves seriously to consider this as a matter of mistaken belief.

THE DEATH OF SOCRATES.

Of all the dialogues of Plato, the Phado has been, perhaps, the most read, and may upon the whole be considered the most interesting. The subject renders it peculiarly attractive. The last hours of the most celebrated ancient philosopher are so minutely related, every circumstance so graphically portrayed, that simply on account of its containing the details of the death of Socrates, it would ever possess importance and value to the thoughtful mind. But, apart from this historic interest, it derives additional value from the absorbing curiosity which we entertain to know the opinions of the wisest of the ancients respecting the immortality of the soul,—to know how they regarded the ebon gate of death,—how much they knew of things not seen, and how much faith they had in the endless existence of their own spiritual nature.

The doctrine of the immortality of the soul, as entertained even by the most enlightened pagans, was but very imperfectly, if at all, understood. In the various conflicting and fluctuating opinions respecting its attributes and destiny, some favoured the belief of its immediate annihilation; others, again, of a limited and undefined existence; others losing all personal identity in the vagueness of a divine emanation, or in the absurdities of the metempsychosis. Cicero, on reviewing these various systems, all destitute of certainty or comfort, exclaimed, "Which of these doctrines is true, a God only can decide; which is most probable, is a question of scarcely inferior difficulty." Socrates is generally considered to have arrived at the nearest possible approximation to certainty with regard to the life after death, but even his arguments fail to convince, being equally applicable to the humblest of the brutes—the least visible animalcule in a drop of water. There is nothing to convince a modern unbeliever, although there is much to embellish belief with beautiful thoughts. Revelation alone makes the eternity of the soul a grave and settled doctrine, which should not be bandied about as a scholastic frivolity.

Everything connected with a great man's life is interesting. The scholar, the philosopher, the poet, the statesman, the warrior have each their peculiar attractions. In a surprising degree Socrates united the qualities of all these—the learning of the scholar, the profound investigation of the philosopher, the enraptured imagination of the poet, the sagacity of the statesman, and the stratagem and valour of the warrior. It is a remarkable fact that nearly all great men are great in all things. They have an amazing, searching, and miscellaneous appetite for knowledge of all sorts. The river of genius is supplied by numerous tributary streams. Such was the genius of the Great Heathen, Socrates.

Four hundred and seventy years before the Christian era, Socrates was born of indifferent parentage, and was brought up to his father's business of a statuary. History mentions three statues wrought by his hand, representing the Graces. This pursuit, however, he soon quitted for the study of natural philosophy, in which he made rapid progress; but finding it so defec-

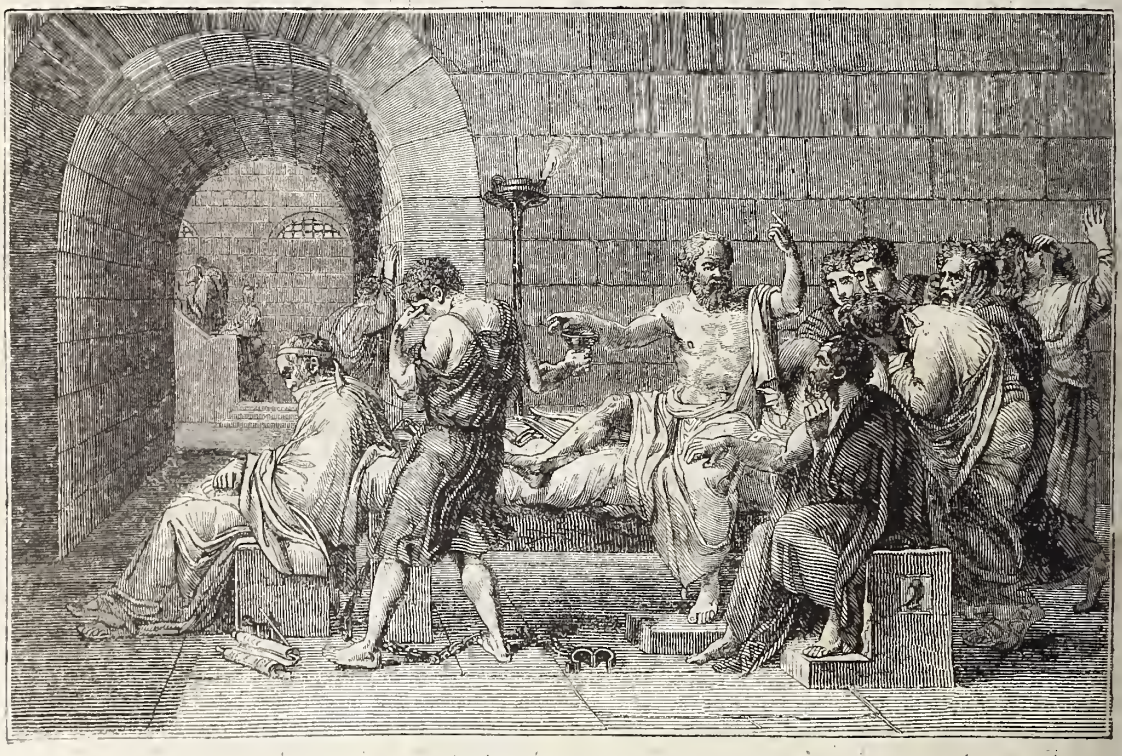
tive and unsatisfactory that he could ground no certain principles upon such a diversity of opinions, he turned his thoughts wholly to the nature of man; and, by diving deep into the passions and affections, endeavoured rather to cultivate the heart than the reason; and rather to regulate the manners than to refine the wit.

He appeared like the rest of his countrymen in the field of battle; he fought with boldness and intrepidity, and when his party was at last forced to retreat, it is said of him *he did not fly as others, but measured the ground by inches*. To his courage two of his friends and disciples, Xenophon and Alcibiades, owed the preservation of their lives. But the character of Socrates appears more conspicuous and dignified as a philosopher and moralist, than as a warrior. We bow to the genius of Socrates more in the academy than on the field of carnage, and honour the sage more than the soldier. His life and doctrines were one continued lesson of virtue. He was himself the imbodiment of what he taught. As to his way of reasoning it was very just, and yet uncommon. He began by doubting and asking questions, as if he sought rather to receive than impart instruction; and, from the answers which must naturally be made, his inferences were usually undeniable. By this means he avoided the odium of dictating, and left to every one the pleasure of convincing himself. Wherever his lessons might be most generally useful, there he was always to be found; frequenting at an early hour the Academy, Lyceum, and the public Gymnasia; punctually attending the Forum at midday, the hour of full assembly; and even joining, without the affectation of austerity, in the convivial entertainments of his friends, or accompanying them in the delightful walks which adorned the banks of the Ilyssus.

But a life of virtue is no security against malice and enmity. Every man who dares to think for himself, without regard to the prevailing notion of his time, and whose influence is important, places himself in a dangerous position. Socrates was accused of Atheism, and condemned to die. Plato has preserved the picture of the good man's end. It is touching, melancholy, simple, and unaffected; an extraordinary air of grandeur and sweetness over it all—a gloomy shadow, but not the deep, dark shades of night; a twilight tinged with the glories of departing day. Socrates is in prison. It is the morning of his last day. The fatal draught of hemlock must be taken, for the ship of Theseus, until whose return no criminal could be executed, is riding upon the still waters of the port, its stern crowned with flowers—token at once of festival and sacrifice. And outside the gate of the prison the disciples of Socrates are waiting—a melancholy group, with sorrowful faces and with heavy hearts.

Within, while they wait, the magistrates are freeing Socrates from his bonds. They are then admitted. There are gathered the disciples, mournful, but not despondent—exalted by the teachings of their guide. Socrates is sitting upright in his bed: there is a cold, cheerless air about the place; but, notwithstanding all, grief is mixed with musical consolings. We see the aged man—for he is threescore years and ten—stroking the limb which the fetters have galled, and, in his quiet, pleasing way, telling how the painful have been supplied by pleasurable emotions, while—

> "Watch'd his better sons the farewell ray,
> That closed their murder'd sage's latest day!
> Not yet—not yet Sol pauses on the hill,
> The precious hour of parting lingers still."



THE DEATH OF SOCRATES.

And at last how he bids them bring the poison, and with a undaunted gaze receives the fatal draught. With wonderf minuteness Plato describes all that ensued. The sudden burst sorrow—the melancholy walk to and fro in the cell—how whe he felt his limbs grow heavy he laid himself down to die—ho the numbing potion acted, and the limbs stiffened and grew col —the command, so ingeniously twisted by the Platonist into hidden and mystical meaning—the sacrifice to Æsculapius—ho Crito asked, "Hast thou no other bidding?"—and the quiet so row of what follows—"To this he made no reply, but after he h been a short time still, he moved, and the man covered him, ar his eyes grew fixed. And Crito perceived it, and closed his ey and mouth."

And the warm heart grew cold, and the bright genius disa peared—but the character of Socrates became one of the mo glorious memories of the golden past. His life's business h been accomplished, and with a glowing anticipation of an u known future—august conjectures of the world to come, t wise man died, lavishing his wisdom on the elevating trut that death is only another name for Immortality.

WINDSOR CASTLE.



WINDSOR CASTLE. DESIGNED BY GILBERT.

)NDON is full of historical and literary associations. Every arter of the great metropolis is memorable for some event nnected with the past. Truly in its noise and bustle, its er wavering life; its struggling, heaving, tempestuous sea business, we forget these things; but they are true never-eless; and the mind will sometimes look back and pic-re a far different scene from that which life in London ex-)its in the middle of the nineteenth century. There was a ne when London was surrounded on every side by fields and pasture-lands, when the Strand had gardens on each side; and on the north lay also fields, surrounding the Haymarket; and this was the case in many parts of Holborn. There was a time when the space from East Smithfield to Tower-hill was unoccupied; when Finsbury Fields were really such, and several windmills stood in them; when Moorfields lay open towards Hoxton, and those called Goodman's afforded pasturage for cattle; when in the rear of Houndsditch lay many fields and unoccupied spaces, and a green zone encircled this mighty city, affording some of

the most delightful country rambles it is possible to imagine. There was a time when the city was a picturesque old place; when May-day saw its May-poles reared—as straight as any arrow that ever English yeoman drew—and gay groups gathering round; when Smithfield was a field of chivalry, and the Thames, "the silent highway," formed the chief medium of communication between London and Westminster—when that rare old bridge, with its Southwark-gate and strong portcullis was the pride of every citizen, and Howel, the old historian, inspired by the subject, tells us in strange old metre that—

> "When Neptune from his billows London spied,
> Brought proudly there by a high spring-tide;
> As through a floating wood he steer'd along,
> And dancing castles clustered in a throng;
> When he beheld a mighty bridge give law
> Unto his surges, and their fury awe;
> When such a shelf of cataracts did roar,
> As if the Thames with Nile had changed his shore,
> When he such massy walls such towers did spy
> Such posts, such iron upon his back to lye,
> When such vast arches he observed that might
> Nineteen Rialtos make for depth and height.
> When the Cerulean god these things survey'd,
> He shook his trident and astonish'd said,
> 'Let the whole earth now all her wonder count,
> This bridge of wonders is the paramount.'"

And, away from London, a trip to any of those favourite resorts which have ever been the great attaction of a holiday, is still suggestive of the old time.

Windsor and its neighbourhood is peculiarly rich in historical association. In old Saxon days, before the Normans had pressed the English soil, Windsor was a manor of the Saxon kings. Its name is of Saxon origin. *Windles-ofra*, or *Windles-hora*, so named from the winding course of the Thames: an etymology far more consistent than the story which is given by Stow, of the ferry which once was there, managed by a rope and a pole, and in which the passengers were accustomed to call out, 'Wind us over!' or that which ascribes its name to the hilly locality, because the place lies high and open to the weather, and the *Wynd is sore*.

Edward the Confessor kept his court at Windsor, but in the latter period of his life he gave the manor to the Abbot and Convent of Westminster. This right William the Conqueror procured again by exchange; and it appears that even after the building of Windsor Castle, the palace of Old Windsor was occasionally inhabited by the kings of England, till the year 1110, when Henry I., having completed some additional buildings at the Castle, which it is probable was at first intended as a military post, kept his court there for the first time at Whitsuntide. After this it is supposed that Old Windsor soon lost its consequence. The site of the royal palace at Windsor is not known.

By reference to the Domesday-book we find that at the period mentioned New Windsor, if indeed there was then anything more than the Castle, was neither a parish nor a manor. The Castle, which had then been lately built by William the Conqueror, was within the manor of Clewer, of which Windsor formed a chapelry; it afterwards became the seat of an extensive manor. The chroniclers of that time chronicle a succession of feasts. They tell us how the sovereign kept his Christmas, his Easter, and his Whitsuntide; and we can picture the entertainments which the first two English Williams gave,—the rough sport, the rough fare, the rough guests,—when every great man was a fighting hero, who left learning to the monks and the poorer sort, and was himself content to win fair fame at the point of the lance, and who gloried to die in harness. But all these feastings were kept at the old Windsor Palace, as Windsor Castle appears to have been intended rather as a tower of defence, or military post, than a royal residence.

New Windsor was honoured by the marriage of Henry Beauclerc to his second queen, Adelaide, daughter of Godfrey, duke of Louvain; and there, too, David, king of Scotland, and the English barons swore fealty to the Empress Maude, the king's daughter. When England became the scene of intestine struggle—when the hosts of Maude and Stephen played havoc in the land, and fields, where yellow corn was wont to wave, became battle-fields, and drank in blood—it does not appear that Windsor Castle sustained any siege; but, upon the peace, this Castle being then esteemed the second fortress in the kingdom, was committed to the safe custody of Richard de Lacy. Henry the second kept his Easter at Windsor, in 1170, at which time William, king of Scotland, and his brother David, were entertained by him as they came to offer their congratulations on his return from Brittany.

The Lion-hearted Richard, upon his departure for the Holy Land, left the Castle in charge of the Bishop of Durham; but during the whole time of the king's absence, its guardians were continually changing, and the possession of Windsor Castle became a constant matter of contention. John found a refuge there when the barons of England took up arms, and became earnest about the rights and liberties of their land: he did not venture to quit his retreat till the signing of the Charta. In the days of the third Henry the Castle was garrisoned with foreigners, who nearly destroyed the town, and did much injury to the country round about. Edward I. and Edward II. resided a considerable part of their time at Windsor, and in the wide-stretching park a grand tournament was held; but all historians agree that Windsor Castle owes its magnificent fabric to the affection which Edward III. bore to the place of his nativity.

The king's method of conducting the work may serve as a specimen of the condition of the people of that age. Instead of engaging workmen by contracts and wages, he assessed every county in England to send him a certain number of masons, tilers, and carpenters, as if he had been levying an army. Three hundred and sixty workmen were thus impressed; and, some of them having clandestinely quitted Windsor, writs were issued forbidding any one to employ them, on pain of forfeiting all their goods and chattels. This may be taken as a fair specimen of these good old times which Young England sighs for and pictures as a very Eden,—good old times when a man could not call his land, his labour, his life, his time, his money, his body, or soul his own,—when a fire or water ordeal, a trial by battle, or the morsel of execration stood in the place of judge and jury,—when fire and candle were extinguished at eight o'clock, at sound of the melancholy curfew,—when, by a system of tenures, the landowners were reduced to absolute slavery.

The plague having carried off a great number of the king's workmen, writs were again issued to the sheriffs of counties to impress masons and diggers of stone. The counties of York, Salop, and Devon were to furnish sixty men each. Few commissions having been issued after the year 1373, and none after 1396, it may be presumed that the work was then completed, comprising the king's palace, the great hall of St. George, the lodgings on the east and south side of the upper ward, the round tower, the chapel of St. George, the Canon's houses in the lower ward, and the whole circumference of the walls, with the towers and gates.

Windsor Castle continued to be the occasional residence of the monarchs, who from time to time made various alterations in the buildings, particularly King Henry VII.; he made several additions to St. George's chapel and the upper ward. Bluff King Hal beautified the principal entrance-gates. His virgin-daughter, Elizabeth, raised a terrace on the north side of the Castle, which is now carried round the east and part of the south front, and extending 1,870 feet in length. Every monarch seemed to add some fresh attraction to the royal residence. Charles I. caused a large magazine of arms to be there constructed, and then formed a collection of paintings; William of Orange, and Queen Anne improved the parks; George III. effected many improvements; and George IV. gave a new impetus to the work, and, at the expense of nearly a million of money, restored the Castle as it now meets the eye.

And there it stands, raised on a chalk hill, and overlooking the Thames, says Camden, "Windsor Castle enjoyeth a most delightful prospect round about; for right in front it overlooketh a vale, lying out far and wide, garnished with corn-fields, flourishing with meadows, decked with groves on either side, and watered from the most mild and calm river Thames; behind it arise

everywhere, neither rough nor over high, attired as it were by nature for hunting and game."

Truly Windsor's towering Castle constitutes one of the greatest attractions in all broad England. Its halls and vast saloons, its carvings, tapestries, and armour, its paintings, its chapel, its tomb-house, all are interesting. Entering by the gateway of Henry VIII., you make your way to St. George's chapel, a beautiful building containing some remarkable fine specimens of Gothic architecture; and there, with the solemn banners which once so proudly floated in the wind—the mantles, swords, and helmets of the Knights of the Garter, you seem to live amid the glories of past chivalry. Eastward of the chapel is the royal tomb-house, where, when the glory of the world is over, the monarchs of England sleep their last sleep.

The Round Tower forms the principal feature of the middle ward, originally intended for the assembling of a fraternity of knights who should sit together as equals, as the knights of old sat round the table of King Arthur, an intention which Edward not being able to carry out to the extent which he desired, gave rise to the far-famed Order of the Garter. It was appropriated also to another purpose: for three hundred years it was the state-prison of the castle, so that one walks solemnly as he makes the hundred and fifty paces which, according to Stow, is the compass of the fortress. From yonder window, James I., the poetry-loving king of Scotland, looked down on the beautiful Lady Beaufort, as she walked in the garden below. There his heart was first touched with the tender passion, and there he inscribed the lines that tell us how fair and beautiful he thought her,—

> "The fairest and the finest young flower
> That ever I saw (me thought) before that hour:
> For which sudden abate anon asterte,
> The blood of all my body to my heart."

It seems that in those prison-walls some inspiration lurked; for there the chivalrous Earl of Surrey immortalised the Lady Geraldine, and there too was lodged the poetical Duke of Buckingham. The first prisoners of note confined within its walls were, John king of France, and David king of Scotland.

The elevation of the tower from the little park to the top of the flag-staff is nearly 300 feet. The interior of the tower is approached by a covered flight of 100 steps, commanded by a piece of ordnance fixed in the wall at the summit. At the top of this staircase, an arched gateway and another flight of steps leads to the chief apartments. From the battlements a panorama, unequalled of its kind in Europe, presents itself, embracing twelve counties. Another magnificent prospect is afforded from the north terrace; so fine, indeed, that Pepys grows eloquent with admiration—"But, oh! the prospect that is in the balcony at the queen's lodgings, and the terrace and walk, are strange things to consider, being the best in the world!" Let us not forget the Grand Banqueting Hall of St. George, with its armorial bearings and traces of the knights of old; here, as in the chapel, our fancy peoples its vast dimensions with a stirring host of warlike men, true heroes of chivalry—the courtiers of the third Edward! The Throne Room is a magnificent apartment, and the Guard Chamber, the Queen's Presence Chamber, the Rubens Room, the Council Chamber, the Royal Closets, and other apartments in the Castle contain, beside their other attractions, a number of valuable paintings. For gorgeous furniture and bedizenment, fine paintings, and royal trappings, there is no place in Great Britain, or probably in the world, can excel Windsor Castle; but it is not only on account of these internal decorations,—not only on account of its historic associations,—the view of the Castle itself, its bold, clear, well-defined outline, against the deep sky, is worthy a visit to the place. Look at it with its pentagon terrace, its bastions and angles, its stately towers rising in the distance, or look at it from the distant river, as our artist has presented it, and who can help owning that it is indeed a glorious sight?

But the neighbourhood is interesting, and this is an additional attraction of Windsor! The very name is suggestive of the frolic which certain merry wives of that same town once had with jolly Falstaff, one thinks of the buck-basket and Datchet meads. And then the park and forest, call up reminiscences of poetry and romance. Once upon a time Windsor Forest was computed at 120 miles in circumference, and in 1607 its circuit was 77½ miles; but it has gradually decreased, part has been thrown into the Great Park, and the plantations about Virginia Water. The northern part of the forest is luxuriantly timbered; and there, in the abandonment of leisure, one might yield to the influence of the place, and with Shakspeare's Henry VI. exclaims,—

> "Methinks it were a happy life
> To be no better than a homely swain:
> To sit upon a hill as I do now—
> To carve out dials quaintly, point by point,
> Thereby to see the minutes how they run.
> The shepherd's homely curds—
> His thin cold drink out of his leathern bottle—
> His wonted sleep under a fresh tree's shade;—
> All which secure and sweetly he enjoys,
> Is far beyond a prince's delicates."

Windsor Forest is celebrated for its wide spreading oaks, stretching their gnarled arms over the rich greensward. Two of them are seen near Cranbourne Lodge, one called the King's Oak, considered to be more than a thousand years old. But even this does not possess the same attractive power as one which rears itself within the home park—"A pale, shattered, leafless ruin, the embrace of whose sapless arms even the clinging ivy has deserted"—but which has attached to it the liveliest interest. Herne's Oak is a classic tree. It is the gift of poetry to hallow every place in which it moves, and with which it is connected. Abbotsford is something more than the residence of a Scottish laird; Lake Leman derives additional interest from having been the residence of one of our modern poets; Canterbury is something more than the metropolitan see when viewed in connexion with old Chaucer's pilgrims; Aubern is dear to the heart, though it be but a deserted village! even Bolt-court has a Johnsonian air with it; and so it is with the Rock at Dover, the Temple Gardens, Datchet Meads, and Herne's Oak; Shakspeare has made them his own, and they participate in his glory. Herne's Oak, the relic of the past, is now protected by a fence, and may be seen in an avenue called Queen Elizabeth's Walk. There, as evening shadows deepen we may recollect and almost realise the legend of the forest,

> "And shun the spirits blasted tree."

Further away rise up the towers and spires of Eton—where Fleetwood, Pearson, Camden, Stanhope, Walpole, Hale, Harley, Bolingbroke, Chatham, Lyttleton, Gray, Fox, Canning, and a host of others distinguished in the senate, the church, or the bar, or who have won their fame with Captain Pen or Captain Sword—were there first educated.

Every step in and about Windsor reminds us of the past. We picture to ourselves the groups which once gathered on the castle terrace, when Elizabeth reigned; the picturesque costume of the period—the slashed pourpoints, the broad ruffs, the rich brocade, the splendour of the court—we think of them all; and how the forest stillness was broken by the huntsmen's shouts, when royal cavalcades rode forth to hunt the deer; or earlier still, the knights of old who tilted in that same venerable forest, when war was the aristocratical trade, and the world was mad for fighting. Stretched on the odorous grass we watch the deer come forth with their stately step; and, while man is absent and life is present, we build our castles in the cloudless air, and speculate about the great ones who have played their parts on the world's stage, but have been gathered to their fathers long ago,—Henry Wolsey, the bright-eyed Boleyn, the broken-hearted Catherine, the ever-changing scene of history, now bright and beautiful, now dark and solemn—the stately march, proceeding now to joyous strains of minstrelsy, and now to muffled monotone—till we begin to think that, after all, it is not the highest and the greatest who have been most free from care—that royal crowns have oftentimes been crowns of thorns—that the heroes of the day have burned with the mad fire of passion—that the lofty genius has been left a ruin and a wreck,—but while greatness and popularity have died out, goodness and virtue have lived on, and shine upon us still with all the bright, clear glory of their steady light.

NEEDLE-MAKING IN AIX-LA-CHAPELLE.

THE ROUGH NEEDLE.



FIG. 1.—WIRE-DRAWING.



FIG. 2.—FLATTENING THE WIRE.

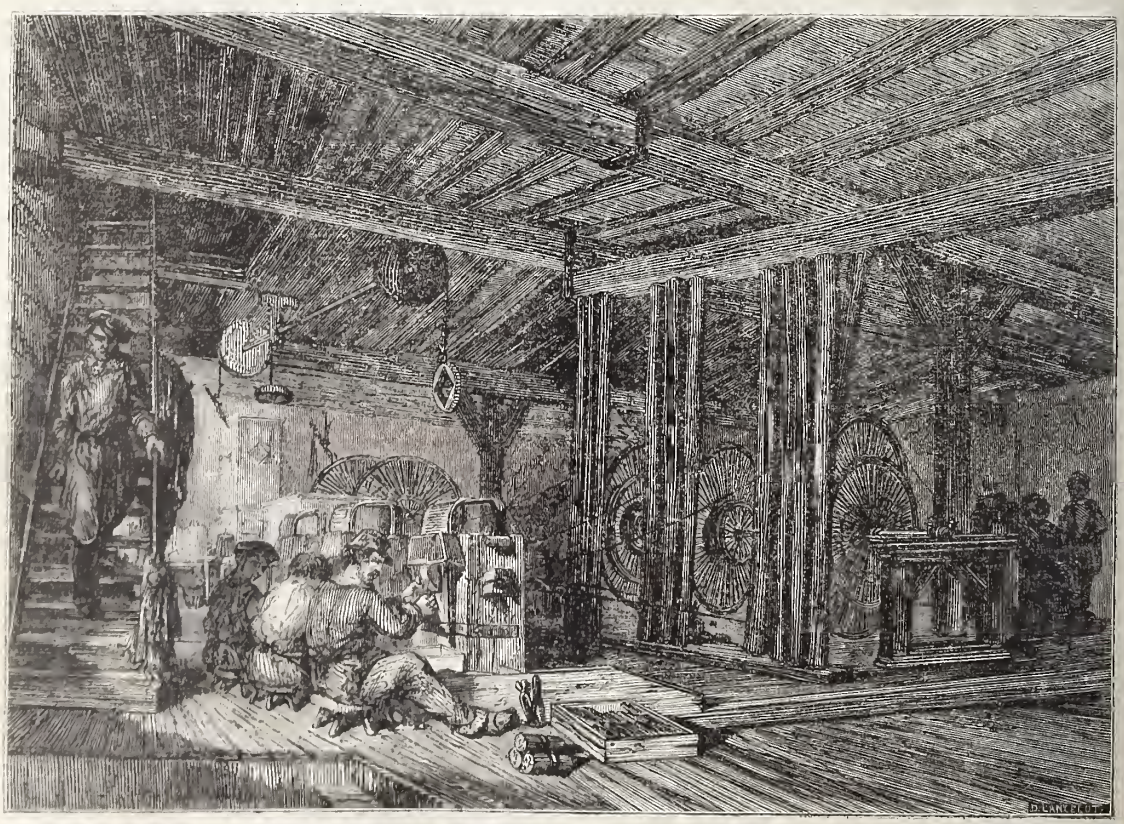


FIG. 3.—POINTING THE NEEDLES.

We have from time to time, in the pages of the Illustrated Exhibitor and Magazine of Art, endeavoured to bring before the notice of our readers some of the most interesting English manufactures. We have given some attention to the gutta-percha works, and shown how that useful material is prepared, and for what purposes it is best adapted; the flint-glass works have not been forgotten, and we have wandered through the vast premises of Apsley Pellatt; we have not omitted the flax-works of M. Claussen, or the works of the Great Western Railway Company; and iron-founding and sugar-refining have both come in for their share of attention. The manufacture of soap, the button-making of Birmingham, the floor-cloth factory,



FIG. 4.—STAMPING THE NEEDLES PREVIOUS TO THEIR SEPARATION.

and the electro-plate works; and locks and keys from the old, old time, when man first began to secure his property;—but all these things have had to do with England—they have to do with British manufactures—we have confined ourselves to our own land—we have been circumscribed by the ocean, and have not stirred from

"The jewel set in the silver sea."

We now propose to draw the attention of our readers to an article of French manufacture—to the making of French needles. Aix-la-Chapelle bears in its manufacturing interest a strong resemblance to that little Worcestershire town, Redditch. It is celebrated for its needles; and to a needle-factory of Aix-la-Chapelle we are indebted for the following particulars.

Never were the uses of co-operation better seen than in the



FIG. 5.—PIERCING THE EYE.



FIG. 6.—DIVIDING THE DOUBLE NEEDLE.

manufacture of a needle. In its progress from the rough wire to the true needle, made of steel, with a sharp point at one end, and an eye at the other, it passes through very many hands, and very many processes.

Needles are divided into a great number of species. Among ordinary needles, the largest and most coarse are recognised in France as No. I. They are generally assorted under the ten numerals, and needles above those numbers are only adapted for the finest sort of work. Tailors' needles bear the letters A to F, and the largest are designated by the signs 4 A, 3 A, 2 A. Surgical needles are altogether different in form, on account of the nature of their operations; the needles which are employed by the bookbinder, the sheath-maker, the glover, the packer, the carriage-maker, the tapestry-worker, the saddler, the embroiderer, the bonnet-maker, the sail-maker, all entirely differ from each other.

The invention of the needle is attributed to a woman in the old days of classic story; but needles were first manufactured in modern times by a German, Elias Krause, and who by the way lived in Whitechapel, and who gained great repute in needle-making in England, in the beginning of the sixteenth century. The secret was lost after his death, but was revived again in 1560 by Christopher Greening.

In France, the name of *aiguillier* is given both to the artisan who manufactures the needle (*aiguilles*), and also to the person who sells them. The aiguilliers were formed into a company, in Paris, on the 15th of September, 1599. The statutes which incorporated that association provided that each manufacturer should distinguish his needles by a particular mark. We need not here detail the history of needles, and tell how the pin-manufacturers and the needle-manufacturers coalesced and became one company in the year 1695; and how afterwards other additions were made to the society; and how the needle-makers of Paris won a world-wide-reputation, which for a long time they maintained, but which ultimately was disputed successfully by the makers at Aix-la-Chapelle; how, in 1787, the first needle-manufactory in Normandy was founded at Aigle, by M. Boucher; how, in 1806, a medal was awarded to a needle-maker of Aix-la-Chapelle; how, in 1827, a new medal was granted to the same manufacturer; how a silver medal was given by the commissioners of the exposition of 1834; how it was very clear that the needle-makers of Aix-la-Chapelle were the best in all fair France. 1844 gave evidence of fresh progress. In one manufactory of needles, 200 workmen were employed. Other manufactories were on a similarly extensive scale, producing an extraordinary amount of needles every week—every day—every hour.

A needle, before it is ready for use, passes through the hands of more than fourscore workmen. The operation of its manufacture is divided into five distinct processes. The first comprehends all those operations relative to the shape of the needle,—that is to say, the conversion of the metallic wire into the rough needle.

The second is for the object of hardening, or annealing the rough needle.

The third has relation to the polish.

The fourth is the distribution of the polished needles.

The fifth is the completion of the needles, and their package for commercial purposes.

The first process contains twenty operations, which we shall enumerate.

The first operation is the choice of wire to be used in their manufacture; this is carefully submitted to a stringent investigation. It is heated to a red-heat in an oven, or iron pan over the fire, or in a furnace, and in that condition is plunged into water. Its strength is then tested, and if it appears remarkably brittle it is laid aside for those needles which are called "*Anglaises.*"

The second operation is that by which the thickness of the wire is ascertained; this is accomplished by a steel gauge. The bundle of wire is examined at different parts, but without untying. If it is found generally equal it is passed on to the next process; if, however, it should happen that the wire is unequal in stoutness, it is rejected and returned to the wire-drawers.

The wire is then submitted to a third operation, by which it is relieved from the black coating which it has gained in the first process. A workman takes it in his hand, and with an iron instrument called the *machefer* and a small piece of linen, removes the outer coating. Before the wire is passed to the wire-drawing plate, it is taken in a pair of pinchers and thoroughly greased with lard, for the purpose of facilitating the wire-drawing process.

The fifth operation removes any impression or injury which the wire may have sustained in its previous testings. It is again handed to the wire-drawers, and is passed a second time through the wire-drawing plate. Here the exact calibre of the needle is regarded. Fig. 1, represents a workman engaged in this department of the manufacture.

The sixth process is the winding of the bundles of wire, and here properly commences the formation of the rough needle. The bundle of newly-drawn wire is arranged upon a winder in the form of a coil, to a height proportionate to its diameter, the wire is drawn out upon a wheel, and cut by a steel instrument into lengths equal to that of two needles. But these wires, having come off coils, are curved, and they must be straightened. This is done very promptly, and in a manner as simple as it is ingenious. They are again made red-hot, a curved bar is laid between them, and in that condition they are rolled backwards and forwards on an iron plate, by means of an apparatus especially adapted for that purpose (see fig. 2), and by which means they are rendered perfectly straight. The tenth operation is that of sharpening or pointing. This process is generally aided by a water-mill, or a steam-engine. In France, as well as in England, the dangerous character of this operation has been felt for a long series of years; and now, there as well as here, precautionary measures are adopted, and every effort made for the salvation of the needle-pointers from the deadly dust.

Each grindstone is carefully enveloped in a cover, which leaves sufficient space at a certain point, through which the dust may escape. At a bench, hard by the grindstone, sits the needle-pointer, who rolls the wire between his thumb and finger, and applies the end of it to the grindstone. One end having been properly sharpened, the other end is applied, for the wire is the length of two needles, and has not yet been parted. As the men thus labour in the pointing and sharpening department, as wheels revolve, and leather straps are moving to and fro with all possible rapidity, the dangerous dust is rushing away, and instead of settling in the eyes and on the lungs of the labourer, is carried out of the factory like a thin smoke. Fig. 3 represents the needle-pointers at work.

The eleventh process is that of separating the twin needles. They are arranged upon a plate of copper, of the exact length required, and are clipped in two with a pair of shears, or arranged in a vice like the centre bone of a fish, and divided by filing with precision between the heads. (Fig. 6.) Being then arranged in small boxes of wood or pasteboard, they are carried to another workman charged with the business of flattening the heads. This is effected much after our own fashion by a stamping-machine and die, which flattens and prints a space just at the very point where the needle's eye is presently to come.

Thousands and thousands fly out of the workman's hand, but back they go into those little pasteboard boxes, and when those boxes disappear, other boxes are waiting for their contents to be served. This operation is sometimes performed before the double needle is separated. Fig. 4 represents the process. To the right are seen two of these double needles, one stamped and one unstamped. The needles which have been borne away are again heated, and then submitted to the puncher, who perforates the needle, and gives it the much-needed eye, while another boy—for these two operators are nearly always children, though in some manufactories women are employed—(fig. 5) clears out the eye from any extraneous matter that may be clinging to it, and with wonderful celerity passes a wire through and through; they are then handed to a workman whom they call "*eviteur.*" This man's business is to groove the needle, and to round and properly fashion the head. The operator places the needle in the nippers on a small steel plate, and with a peculiar file clears away all sharp bits or ragged edges, twirling the needle round, and forming the head in a time far less than one could describe it. The needles are by this time in a state of disorder, and are heaped together upon a board or trough; one of the workmen then begins to agitate them from right to left, and continues to repeat this oscillation;

movement until the needles, as if by magic, begin to arrange themselves in parallel lines. This method, simple and ingenious as it is, was not known in ancient times, and has only been practised during the last fifty years. The needles are then impressed with the stamp—a mark which indicates their quality and character. This is performed with amazing rapidity, fifteen or twenty being stamped at once. They are then passed under an iron roller upon a wooden table, and having been thoroughly rearranged in the trough as before, that first part of the article's manufacture is complete, and we have before us A ROUGH NEEDLE. We shall revert to the subject of French needle-manufacture on a future day.

THE ROUGH HOME AT HORN, NEAR HAMBURG.

WE resume our notice of this interesting subject. We left Wichern in his home, in the midst of happy faces; in a little time this benevolent man saw his own house surrounded by thirteen eminently useful edifices, all devoted to the divine work of moral rescue. The position of the establishment is much favoured by nature. Toward the north you behold the long range of mountains termed the Wandsbeck, well covered with wood, out of which rises the church-tower. In the south you have a view over a very wide plain, intersected by the Elbe and the lovely Billfluss. Between the two streams runs the railroad from Hamburg to Berlin. On the horizon is discovered other railways which go into the heart of Germany; and the interval is filled up with windmills, church-towers, factories, hamlets, villages, orchards, and gardens. And in the west the eye, after pausing over the richest growths of underwood, trees, fruits and flowers, falls on Hamburg, with its lofty towers and beautiful suburbs. Thus, in the midst of the busy life of the world, but apart from its noise and its pollutions, and in the midst of objects of natural beauty and loveliness, stands the Rough Home, more beautiful than aught in its vicinity, the crown of the land; surrounded in its immediate neighbourhood by flowers and fruits various in kinds, but all lovely to the eye, grateful to the palate, and salubrious to the frame; with a small church in the centre of the group, within which every day the entire family assembles to praise and bless their Maker, the Author of all this good. What a change is here! what a creation of happiness! But for the Rough Home these flowers would never have bloomed—these human beings would have been in vice and wretchedness. Surely Wichern is a very happy man!

In the Rough Home there are two institutions; a House of Rescue for children, and a Brotherly Union, connected with the German Home Missions. The former receives children, not only from Hamburg, but also from Germany, Holland, and Denmark. Every child has to pass through a novitiate: before he enters the family he is made acquainted with the spirit of the establishment, and prepared to live in future in a manner worthy of his nature and his opportunities. Twelve children make a family. Over every family is a member of the Brotherly Union. That brother constantly lives in and with his family: he is their father; he is their instructor. Having under his care a small number, he can and does act directly and powerfully on the character and the life of each pupil. Labour and prayer are interwoven: even the recreations of the Rough Home are pervaded by the spirit of religion. The effect is not sadness, but a seemly cheerfulness. Joy and pleasure are there in all their hilarity, and never in their excess.

The different establishments in operation are three for tailors; two for shoemakers; one for slippermakers; a wool-spinning for boys; a pottery; a printing-house; a bookbinding-house; and a shop for lithography. The three last receive work from without; the rest labour only to supply the wants of the Rough Home. There are other pursuits—such as baking, printing, stonemasonry. The girls are employed about the house; or they wash, they cook, they ply the needle.

A striking object is the noble room set apart for domestic prayer. Summer and winter it is decorated with flowers. Daily, the middle is filled with children; on the left sit the boys, on the right the girls; they are surrounded by the adults of the establishment. At one end is an elevated chapel, where stands the organ. At the other end is the place for the father of the family, who leads the worship, and for the reader; also for the Lord's Supper Table; behind which are the boys who take part in the service. On the table lies a large Family Bible—an emblem of the faith, hope, and charity, of the house. The boys and girls are divided into two rows, according to their condition in regard to baptism and confirmation. Each row is attended by officers; who lead them in the part which they have to perform in the liturgical service of the place. The daily worship comprises the entire life of the inmates—both their private and their public life—according to its chief relations. Instructions are given and devotion is intermingled, so as to touch and embrace each individual child in all his own private history, feelings, and conduct; and equally in all the positions in which he stands, or is likely to stand, to his fellow-men. Religion is thus made the central power of education, and education is settled on a deep, broad, immovable basis. At the same time much free movement remains; free movement of mind, of heart, and of life; free movement, indispensable in every good education.

Among the festivals of the Rough Home is the festival of labour. A bold, but a noble conception! A rest from labour to rejoice in the power of labouring! The hands quiet, that the heart may beat more freely with joy and gratitude! Men who can rejoice thus are prepared to labour wisely and well! Between 1833 and 1850 this festival was held but twice. The pupils laid aside their employments, in order to show their friends visible proofs of the progress they had made. Pupils who had quitted the house sent presents from a distance to contribute towards the festivities.

In the seventeen years of which Wichern gives some account in his "Festbüchlein" (small festival-book), the Rough Home had completely recovered, and well trained 195 boys and girls. That number had been sent forth into the world. One hundred more remained in the institution, and were undergoing its mild reformatory, and effectually restorative discipline. Those who had quitted that happy home were not lost from sight. A kindred establishment, holding meetings in the evening, in the city of Hamburg, gather the young ones into its bosom, and shelters them from the evil that is in the world. Those who go other cities are commended to the care of men of like spirit. The Rough Home has formed workmen of all kinds—agricultural labourers, sailors, tradesmen; and very rarely does it happen that one of its pupils falls back into the practices from which he had been snatched.

The Brotherly Union, which is connected with the Rough Home, receives under its fostering care adults whose purpose it is to labour in some field of benevolence;—it may be to take charge of children in the Houses of Refuge; it may be to minister to prisoners, or to the needy; it may be to disperse Bibles, and other religious books; or to perform the duties of city-missionaries; or to give succour to emigrants; or to mingle in labour with the labourers on the roads, in workshops, &c., that they may carry the spirit, and, if possible, the power of religion into the intercourses of men and the pursuits of the world. Up to the end of 1850, eighty brothers had gone forth from the Institution, who now are engaged, as just described, in various parts of the continent, and even beyond the Atlantic. There are forty brothers still under training, who, while they prepare for wider and higher influence, attend to the duties of the Home Mission in Hamburg. Females too, bearing the name of sisters, in number about a moiety of the brothers, are educated in the Rough Home, of whom some remain to discharge the offices of the Institution, and others go out into society and find suitable occupation in establishments of benevolence and piety.

Wichern, who is the heart and the soul of this system, is a man of energy, judgment, and benevolence. If he has in his thoughts less novelty than Pestalozzi, he has far more power of execution. Possessing the sympathies which prompt the desire for usefulness, he possesses also the wisdom which devises plans for its attainment; and, moreover, possesses the practical skill which knows how to carry good plans into effect. The last is, perhaps, the rarest quality; and scarcely ever has this high endowment been found in fuller development or greater perfection than in the founder, the conductor, the father of the Rough

Home. Ready with his pen as well as his tongue, Wichern has by the works he has published, and particularly his "Flying Leaves," greatly contributed to make his efforts known; to make their real aim understood; to exhibit their operation, tendency, and actual results; and so to cause them to be taken up and carried on in other parts of the world. Wichern is a member of the Protestant Church, and would have held office in it as one of its ministers, had he not been held bound by love and duty in a work at once benign and evangelical. Where shall we look for an English Wichern?

RICHARD WILSON, THE LANDSCAPE PAINTER.



RICHARD WILSON. FROM A PORTRAIT BY RAPHAEL MENGS.

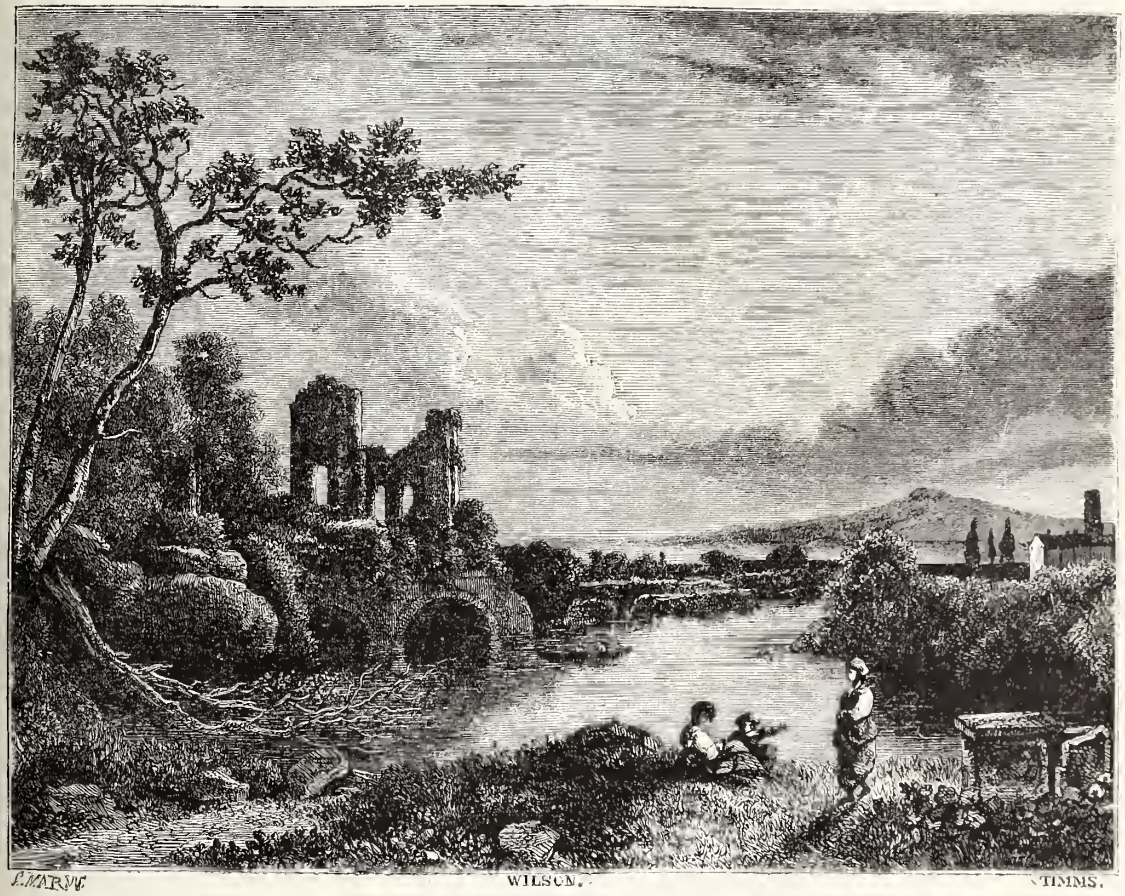
The story of a man of genius is always interesting; but, alas! it too often happens that the story is of a melancholy character; that its hero is seen battling hard with circumstances for a bare subsistence—denied bread in the present, and given a stone in the future. Building the sepulchres of the prophets dead, and rejecting the prophets that are among us, is an old offence. As the remembrance of the man fades away, the character of his works rise in public estimation. The life of Richard Wilson presents us with an instance.

He was born in the year 1713. His father was a clergyman in Montgomeryshire, whose family was of old standing; and his mother was one of the Wynns, of Leeswold. At an early age he began to exhibit a taste for drawing, and his first rude sketches were made with a burnt stick upon the walls of the house. This early indication of his genius he shared in common with many others, who afterwards became great artists. Hogarth says that his exercises at school were more remarkable for the ornaments which adorned them than for the exercises themselves. Th same predilection was evidenced in Reynolds, so that his fathe rebuked this inclination for making private drawings instead c public exercises, by writing on the back of a prohibited desig "Done by Joshua out of pure idleness." The copybooks c Gainsborough were filled with pencillings of flowers and tree Benjamin West, in the far-off Quaker settlement, gave proof c extraordinary power; and Barry, employed in his boyhood by a Irish skipper, was sent away for incorrigible laziness, in sketchin on the vessel's deck great ships tempest-tossed, and uncouth shaggy, bearded heads.

In Wilson's case, however, no attempt was made to repress th propensity for design, every encouragement which could be afforde was given, and the child still sketched trees, animals, houses, mer How long this went on is uncertain, or how the young draught man managed to secure the patronage of his relation Sir Georg Wynn, under whose care he quitted his old home, and set out f

London. There he was placed under the instruction of a portrait painter named Wright—a man whose genius, if he had any, was lost in obscurity.

His progress under such a master could be but little, and we soon find him settled down into a commonplace portrait painter, struggling with hundreds of others for the orders of those who sought their aid. They say his portraits exhibited no peculiar excellence. Edwards, indeed, asserts, that in drawing a head he was not excelled by any of the portrait painters of his time—that his treatment was bold and masterly, and his colouring in the style of Rembrandt, but Edwards stands alone as to this matter. In 1748 he was employed to paint a picture of the Prince of Wales and the Duke of York, for their tutor the Bishop of Norwich. Wilson was then five-and-thirty years old, and the following year he was enabled by his own savings and the help of his friends to go to Italy; there he continued his practice of portrait painting—greatly improving in his style—his talents procuring the frequent subject of his pencil. "Wilson," says Allan Cunningham, "did not proceed upon the plan of study—much recommended but little practised—of copying the pictures of the old masters, with the hope of catching a corresponding inspiration; but he studied their works, and mastered their methods of attaining excellence, and compared them carefully with nature. By this means he caught the tone and character of Italian scenery, and steeped his spirit in its splendour. His landscapes are fanned with the pure air, warmed with the glowing suns, filled with the ruined temples, and sparkling with the wooded streams and tranquil lakes of that classic region. His reputation rose so fast that he obtained pupils. Mengs, out of regard for his genius, painted his portrait; and Wilson repaid this flattery with a fine landscape." Vernet, the French artist, used to say, when any of his own productions were admired or purchased by the English,—"Don't talk of my landscapes alone, when your own countryman, Wilson, paints so beautifully."



MORNING. FROM A PAINTING BY WILSON.

him notice, and his company being courted by men of sense and rank. A fair way of success, of opulence and fame, was opening before him,—but a simple incident turned the whole purpose of his life.

Having waited one morning, till he grew weary, for the coming of Zucarelli, the artist, he, to pass the time, employed himself in painting the scene upon which the window of his friend looked; this being performed with a considerable share of force and skill, attracted the attention of Zucarelli, who was so pleased with it that he strenuously advised the artist to follow that line only, as being more congenial to his powers, and therefore most likely to obtain for him fame as well as profit. This flattering encomium, from a painter of established reputation, had its effect; and Wilson from that time exchanged portraiture for landscape, which he pursued with vigour and success. To this circumstance is owing the splendour diffused by his genius, not only over his native country, but even over Italy itself, whose scenes have been

In 1755 Wilson returned to London, and took up his residence in Covent-garden. To the first exhibition of the Society of Artists he sent his famous picture of Niobe. In 1765 he exhibited a view of Rome, from the villa of Modena. The Duke of Cumberland bought the first, and the Marquis of Tavistock the second of these pieces: the prices have not been recorded, but they were probably low. Having assisted in the foundation of the Royal Academy, he, after the death of Hayman, solicited and obtained the situation of librarian, a place of small profit, but one which his circumstances rendered convenient; "but for which," says Pilkington, "he was, in one respect, ill qualified, being never at his ease out of a tavern." The talent of Wilson did not secure him that encouragement and distinction which his abilities deserved. He was doomed to encounter the galling indifference of a tasteless public, which it is said was aggravated by the jealousy and intrigues of some of the most distinguished of his contemporaries, with whom he did not live on very amicable

terms. This neglect might in some measure result from his own conduct, for his imprudence must be confessed; and though a man of strong sense, and superior education to most of the artists of his time, he certainly did not possess their suavity of manners. While the beautiful landscapes of Wilson were totally unappreciated, the demand for Barrett's pictures was so great that he was realising more than £2,000 a year, and the equally weak landscapes of Smith, of Chichester, were of high value in the market. By this capricious ignorance of those who could have aided him, he was reduced to very great indigence, and his chief resource was the sordid liberality of pawnbrokers, to whom he consigned some of his finest pictures immediately upon their completion. All the world seemed leagued against him; a person who purchased many pictures from him, when urged by the unhappy artist to buy another, took him into his shop garret, and pointing to a pile of landscapes, said, "Why, look ye, Dick, you know I wish to oblige, but see! there are all the pictures I have paid you for these three years." Disappointed on every hand, our landscape painter became still more coarse and repulsive in his manners; he could now no longer flaunt in his gay attire, "in a green waistcoat ornamented with gold lace," in which he used to attend the academy in St. Martin's-lane. It is said he painted his Ceyx and Alcyone for a pot of beer and the remains of a Stilton cheese! He grew peevish, his language assumed a tone of acerbity which ill suited his warm and benevolent heart—his mind became as squalid as his dress.

Wilson was fond of the company of Sir William Beechey, at whose residence he frequently reposed from the cares of the world, and the persecutions of fortune. The first time that he was invited to dine with Beechey, he replied to the request by saying, "You have daughters, Mr. Beechey, do they draw? All young ladies draw now." "No, sir," answered his prudent entertainer, "my daughters are musical." He was pleased to hear this, and accepted the invitation. Beechey called on him one day, and found him at work; he seized his visitor hastily by the arm, hurried him to the remotest corner of the room, and said, "There, look at my landscape—this is where you should view a painting, if you want to examine it with your eyes, and not with your nose." He was then an old man, and painted somewhat coarsely, but the effect was wonderful.

As he grew older, he became still more depressed in circumstances, his fine house was resigned for one much inferior—the inferior for a still worse, the fashionable street was given up for one thoroughly obscure, till at last he took a lodging in Tottenham-court-road, "where," says one of his biographers, "an easel and a brush—a chair and a table—a hard bed with a few clothes—a scanty meal, and the favourite pot of porter, were all that he could call his own." In this place he was visited by a lady of rank, who was brought to Wilson by a young student of the Academy. She commissioned the painter to execute two pictures, fixed the prices, and drove away, but Wilson detained the young man, saying "Your kindness is in vain, I am wholly destitute, I cannot even purchase proper canvass and colours for these paintings." The young man gave him twenty pounds, then went home and said to himself, "When Wilson with all his genius starves, what will become of me?" He laid palette and pencils aside, pursued his studies at college, and rose high in the church.

The infirmities of old age were coming fast upon Wilson, his sight failed, his skill of touch forsook him, he was sinking lower day by day, when a small estate became his by the death of a brother, and a profitable vein of lead had been discovered in the ground—it rescued him from a pauper's death—it relieved London from witnessing the melancholy close of his life. He took an affectionate farewell of Sir William Beechey, and set out for his native place. He arrived safely in Denbighshire, and took up his abode with a relation. There, amid verdant lawns, wide-stretching fields, old romantic woods—working little and walking much, the old man passed his few remaining days. One day he was absent longer than usual; a favourite dog which had accompanied him returned alone, howling and manifesting every sign of uneasiness, pulling at the clothes of the servants, and finally succeeded in bringing them to the aid of his master, who had sunk down and found himself unable to rise. He was carried home, but never fairly recovered from the shock. He complained of weariness and pain, refused nourishment, and died in May, 1782, in the 69th year of his age.

The names of a few of Wilson's principal compositions will show the historical and poetical influence under which he wrought:—The Death of Niobe; Phaëton; Morning; View of Rome; Villa of Mecænas, at Tivoli; Celadon and Amelia; View on the river Po; Apollo and the Seasons; Meleager and Atalanta; Cicero at his Villa; Lake of Narni; View on the Coast of Baiæ; The Tiber near Rome; Temple of Bacchus; Adrian's Villa; Bridge of Rimini; Rosamond's Pond; Langollen Bridge; Castle of Dinas Bran; Temple of Venus at Baiæ; Tomb of Horatii and Curatii; Broken Bridge of Narni, and Nymphs Bathing.

Of the style of Wilson it may be sufficient to observe, that it formed an epoch in English landscape painting, being equalled by none before, and perhaps not surpassed by any who have followed in the same line. Fuseli says, "Wilson's taste was so exquisite, and his eye so chaste, that whatever came from his easel bore the stamp of elegance and truth. The subjects he chose were such as did credit to his judgment; they were the selections of taste; and whether of the simple, the elegant, or the sublime, they were treated with an equal felicity. Indeed, he possessed that versatility of power, as to be one minute an eagle sweeping the heavens, and the next a wren, twittering a simple note on the humble thorn."

ENCOURAGEMENT TO INVENTORS.

Few men who have rendered service to mankind by striking out inventions have met with encouragement at the first. Their objects have been misconceived, or imperfectly understood, and if they have not encountered absolute ridicule and contempt, they have, at least, had to complain of the neglect or coldness of their own generation. Even their friends have sometimes suspected their motives or underrated their labours. Their chief encouragement, their best recompense, in such circumstances, has been the consciousness that they were doing their duty. A very striking illustration of these remarks is presented in the case of Robert Fulton, the inventor of the Steamboat, in North America. Though his invention has, in the course of a few years, produced such an astonishing change in that vast country, by connecting together the most distant States, he sustained the mortification of not being comprehended by his countrymen, and was even treated as an idle projector, whose schemes would be useless to the world and injurious to himself. This circumstance has frequently been referred to; and we are able to furnish the particulars, as stated by Fulton himself.

Mr. Fulton says, "When I was building my first Steamboat at New York, the project was viewed by the public, either with indifference or contempt, as a visionary scheme. My friends, indeed, were civil, but they were shy. They listened with patience to my explanations, but with a settled cast of incredulity on their countenances: I felt the full force of the lamentation of the poet,—

> 'Truths would you teach, to save a sinking land,
> All shun, none aid you, and few understand.'

As I had occasion to pass daily to and from the building-yard, while my boat was in progress, I have often loitered unknown near the idle group of strangers, gathering in little circles, and heard various inquiries as to the object of this new vehicle. The language was uniformly that of scorn, or sneer, or ridicule. The loud laugh often rose at my expense,—the dry jest—the wise calculation of losses and expenditures—the dull, but endless, repetition of the 'Fulton Folly.' Never did a single encouraging remark, a bright hope, or a warm wish cross my path. Silence itself was but politeness, veiling its doubts, or hiding its reproaches.

"At length the day arrived when the experiment was to be put into operation. To me it was a most trying and interesting occasion. I invited many friends to go on board, to witness the first successful trip. Many of them did me the favour to attend, as a matter of personal respect; but it was manifest they did it with reluctance, fearing to be the partners of my mortification

and not my triumph. I was well aware that, in my case, there were many reasons to doubt of my own success. The machinery was new and ill-made; many parts of it were constructed by mechanics unaccustomed to such work; and unexpected difficulties might reasonably be presumed to present themselves from other causes. The moment arrived in which the word was to be given for the vessel to move. My friends were in groups on the deck. There was anxiety mixed with fear among them. They were silent, and sad, and weary. I read in their looks nothing but disaster, and almost repented of my efforts. The signal was given, and the boat moved on a short distance, and then stopped, and became immovable. To the silence of the preceding moment there now succeeded murmurs of discontent, and agitations, and whispers, and shrugs. I could hear distinctly repeated, 'I told you it would be so, it is a foolish scheme, I wish we were well out of it.' I elevated myself upon a platform, and addressed the assembly. I stated that I knew not what was the matter; but if they would be quiet, and indulge me for half an hour, I would either go on, or abandon the voyage for that time. This short respite was conceded to without objection.

"I then went below, examined the machinery, and discovered that the cause was a slight mal-adjustment of some of the works. In a short period it was obviated. The boat was again put in motion. She continued to move on. All were still incredulous. None seemed willing to trust the evidence of their own senses. We left the fair city of New York: we passed through the romantic and ever varying scenery of the highlands; we descried the clustering houses of Albany; we reached its shores; and then—*even then*—when all seemed achieved, I was the victim of disappointment. Imagination superseded the influence of fact. It was then doubted *if it could be done again*; or, if done, it was doubted if it could be made of any great value."

Robert Fulton persevered. His first vessel proceeded at the rate of five miles an hour. Vessels subsequently built increased the speed to eight, ten, twelve, and fifteen miles an hour. Steam navigation is now fully established in America. In Great Britain steam-ships now amount to a formidable number. The steam-vessels that left and entered British ports, to or from foreign ports, in 1850, were as follow:—

	Inwards.	Outwards.
England	10,782	10,117
Scotland	4,467	4,603
Ireland	4,340	4,534
Isle of Man	225	172
	19,814	19,756

Besides the above, 399 steamers arrived from, 369 started for, the British Colonies in the same year. What would the American Robert Fulton, and our James Watt, have said,—what would they have felt,—had they been alive to read such returns?

THE MOLE-CRICKET, OR COMMON FEN-CRICKET.

The mole-cricket, or common fen-cricket (*Gryllotalpa vulgaris*), is formed like the ordinary cricket, to which tribe it moreover belongs by its zoological affinities: the length of its body is about one inch, divided into three portions, like all insects; its colour is of a reddish brown, the middle portion being of a grayish velvety brown; two horizontal wings issue from the latter part, which prolong themselves into fillets beyond the wing-shells to the posterior extremity of the body. (Figure 1, indicates these various characteristics.) The anterior legs are widened and terminated by five teeth, the second of which forms a large star. (Figure 2 represents one of the legs magnified three times.) They thus resemble a hand, and serve to dig like those of the mole, which they somewhat resemble, and hence they are called the mole-cricket.

There are several species of the cricket tribe: that under our notice is the European species, the only one whose habits have been observed. This species, as is known, lives under ground, and only comes forth into the open air at rare intervals, principally at night and during dry weather. Their abodes consist of a certain number of galleries which diverge irregularly from a central cavity, communicating with the outside by a small aperture; these galleries are perfectly smooth in the interior, and are about a quarter of an inch in diameter. It is in the central cavity that the mole cricket retires and remains immovable during the entire winter; it is also there where the female lays its eggs. The laying takes place in the spring, when the male chirps somewhat like the ordinary cricket, but not so piercingly. The young ones are white; gradually, however, they become brown, and assume their natural colour; from that period their resemblance to the adults is complete, differing only from them by the absence of wings. Around the central point of the abode of a mole-cricket, the earth is generally more heaped up than in the more distant points; so that the presence of a mole-cricket's nest may easily be known by a kind of heap of earth which stands out from the surrounding soil. We have represented one of these nests. Figure 3 shows the entire nest, with the aperture of issue; and figure 4 shows the interior of the nest. The galleries, and the central cavity, are not very deep; they scarcely exceed the extremity of the roots of kitchen garden plants of small dimensions. In some instances, however, they have been found as deep as eighteen inches. The galleries are generally less deep than the cavity of the centre; they are even frequently known on the surface of the soil by small longitudinal elevations of earth, which follow their direction. The mole-cricket digs itself these various subterranean spaces; for this purpose it makes use of its hind legs, for which they are admirably adapted by nature: somewhat like the mole, it cuts through the earth by throwing it aside, and partly raising it, by causing the small superficial elevations of mellow earth to which we have already alluded. In this operation no obstacles are suffered to stand in the way of the mole-cricket; it is not diverted by them if they are surmountable; that is to say, when they only consist of the roots of young herbaceous plants; it then sets to work energetically; it cuts a road across, partly cuts the root, if it is of a diameter exceeding that of the gallery, or digs it down entirely when it is not too thick. It is in this manner that the ravages are produced of which the cultivator of the land has so frequently to complain.

There are few insects so hurtful to agriculture as the mole-cricket. In clayish lands, and above all in lands adjoining woods, the ravages they create are truly incredible. Wheat, oats, and barley have no sooner pushed forth their stalks of verdure than the mole-cricket commences his harvest. It devours the roots of the most tender portion of the plant, leaving the stem, bereft of life, to wither and to die. The farmer beholds the vegetation of his fields daily growing thinner, and whilst he laments the loss of his crop, the perfidious insect which robs him of the produce of the sweat of his brow, seems to mock him by chirping from the depths of his little cavern. Maize is the favourite food of the mole-cricket. In vain the husbandman wearies himself in manuring, turning up, and sowing his land; if they once have encamped themselves there, they will devour, according to their pleasure, a fourth, one-half, or two-thirds of his sowing-seeds, deeming themselves even very generous if they leave him the remainder. Were ever barbarian invaders more exacting? Doubtless, the husbandman who is strongly imbued with the sentiment of his rights defends his property with noble energy. He valiantly yields combat to the mole-crickets. But of what avail is his valour against an enemy intrenched subterraneously as in an impregnable citadel?

On the subject of the disastrous effects produced by the mole-cricket on the roots of young plants, much discussion has arisen as to the real food of this insect. Does it feed upon the substance of the roots which it destroys, or does it exist upon worms and insects? Several mole-crickets placed in the same box never

fail to devour each other. On the other hand, tender plants, lettuce in particular, for which the mole-cricket appears to have a special predilection, are frequently gnawed beyond the diameter of the subterranean canal in which they were exposed to the action of the insect. Probably its food is of a mixed character. But however this may be, the results produced are the same, frequently impossible to retrieve, and very difficult to prevent.

Several means have been successively employed, or extolled, to destroy mole-crickets: that which appears to yield the most successful results, is unquestionably that mentioned by M. Barthe, an eminent French naturalist.

"Much has been written," he says, "upon agriculture; learned spirits have treated upon every subject relating to it, and yet in none of their works have I seen mention made of an efficacious remedy against mole-crickets. In a dissertation, however, upon the subject of pernicious insects, in an agricultural periodical, a remedy is pointed out which consists in destroying the greatest possible number! This remedy is a good one as far as it goes; but the most difficult task is, not to kill the mole-crickets when they are under our feet, but to determine them to quit their abode to give themselves up to destruction.

FIG. 1. COMMON MOLE-CRICKET.

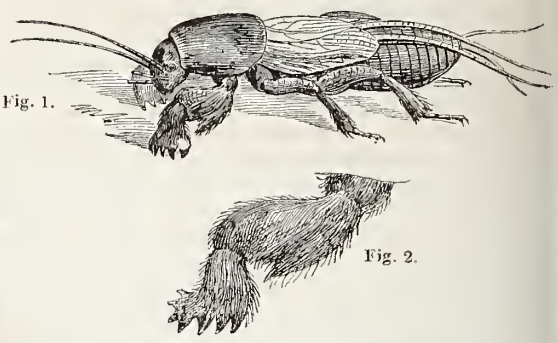


FIG. 2. ANTERIOR LEG, THRICE MAGNIFIED.

Here the author relates how he has seen it practised by one of his neighbours, tilling his ground whilst sowing Indian wheat



FIG. 3. NEST OF THE MOLE-CRICKET. FIG. 4. INTERIOR OF THE NEST.

Nevertheless, this method is frequently adopted in gardens. The mole-crickets sleep during the day, and only give themselves up to their gambols during the night. When the weather is dry, and at the hour that the mole-crickets make the air resound with their thousand shrill voices, the watchful gardener seizes a light with one hand and a spade with the other, and proceeds to give battle to the redoubtable enemies of his kitchen-garden; but how trifling is the result! What are five or six crickets killed on a favourable night, when we reflect that a single female lays thousands of eggs in her burrow. These eggs, yellow, and glittering like grains of millet, hatch in a month, and hardly have the young issued from their shell when they already commence to give themselves up to all the excesses of a life of devastation.

It would, therefore, be rendering an immense service to cultivators of the soil to teach them a means of exterminating these pernicious insects. I know such a remedy. This useful discovery is not my own. It came to my knowledge in the following manner:—

The remedy is as follows: "In the process of ploughing, the plough, in digging every furrow, raises and throws aside a portion of the soil more or less compact. The holes of the mole-cricket known by their outward aspect are thus revealed. These consist, as we have said, of small round apertures, perfectly smooth in the interior, and about a quarter of an inch in diameter. As soon as one of these holes is perceived four or five drops of oil are poured in the interior, with the barrel of a quill opened at one end and closed at the other. After this, water is shed in the same hole so as to fill it to the orifice. A second after this the water is seen to stir, and the mole-cricket to issue forth wildly from its burrow, to become black, to throw itself on its back, to struggle convulsively with its legs, and to die."

The author adds, "I have caused this process to be applied in two of my fields which had not yet been ploughed, and with the most perfect success. My experiments have been less conclusive

and less prompt with lamp oil than with salad oil. Moreover, the expense is trifling: a pint of oil is sufficient to exterminate the mole-crickets in an acre of ground infested with them. In order not to lose any time, it is advisable to place at the two extremities of the field under the process of ploughing, two buckets, from which the person charged with pouring in the water can easily draw a supply. I have also observed that it was essential to the success of the operation not to fill the holes too much. If the water runs over the oil runs over with it, the mole-crickets get off with a compulsory bath which only temporarily incommodes them. The oil, therefore, possesses a special virtue to kill these insects, and the water is only intended to make the oil reach them.

The process just described is of very easy application in clayey lands, but it is not so in sandy or light soils. In the latter, the ploughshare, instead of raising the soil in compact masses, breaks it, and frequently fills with dust the holes of the mole-crickets. The operation then becomes impossible. Fortunatel sandy soils, and particularly calcareous soils, suffer but little from the attacks of the mole-cricket."

CORK, AND THE CORK TREE.



THE SPANISH CORK-TREE.

Of the cork-tree there are two varieties, the broad-leaved and the narrow-leaved. It grows to the height of upwards of thirty feet, and is a native of some of the southern parts of France, of Spain, Portugal, Italy, Corsica, and Algeria. It bears a strong resemblance to the evergreen oak; and attains to a great age. It exists in great abundance in the Pyrenees, and in Catalonia forms whole forests. It is known in this last province by the name of *Suro*, but the Spaniards in general give it that of *Alcornogue*. It is principally in Catalonia that it is cultivated for use, and it is from thence that nearly all the cork used in Europe is exported.

The bark of the tree, which is an evergreen, is rough and spongy on the trunk and main branches, smooth and gray on the smaller branches, and white and downy on the young shoots. The leaves are of a bright colour, oval shaped, with indented edges; they are smooth on the upper, and covered with a sort of down on the under side. They grow alternately on the branches on very rough, though strong, foot-stalks. The acorns of the cork-tree are longish, smooth, and brown, when ripe, and of the same size and shape of some of our common acorns, to which they are so much alike as, when mixed together, not to be distinguishable. The narrow-leaved cork-tree is only a variety of the common sort.

Cork is nothing more than the thick spongy bark of the cork-oak. A transverse section cut from the trunk, or one of the larger branches of an adult tree will exhibit the progressive

development from the centre to the circumference, which presents, in the first place, a portion filled with marrow, or pith, —the *medullary canal*. Secondly, a series of layers of smaller, more close, and compact in texture,—the *wood*. Thirdly, the exterior covering, or *bark*.

In close contact with the wood and bark numberless cells filled with sap may be observed. From these cells the *parenchyma*, or spongy substance of which the cork is formed, and the matter for new wood is supplied. Each succeeding year they deposit two distinct layers or beds, one of wood to the outside of the woody part, giving strength and solidity to the tree, the other of parenchine to the inner part of the bark, increasing its thickness.

The epidermis which surrounds the whole of the bark is the same matter that formed the thin, smooth skin of the sapling, in which no indication of cork was to be seen; but as the tree advances to maturity the skin is pushed outwards by expansion from within, and becomes cracked and gnarled as we see it.

Frequently a spontaneous separation of the bark from the wood takes place where trees are not properly attended, to the serious loss of the owner; for, not only may the tree be injured by exposure to frost or rain, but the bark naturally thrown off is of a very inferior quality to that removed at a proper season.

Trees cultivated for the purpose of barking are allowed to attain the age of fifteen or twenty years before any attempt is made to remove it. The first produce is esteemed of little value, and generally rejected for corks or bungs of the best manufacture; but the after-crops acquire a commercial value as the tree advances in age.

The manner of removing the bark from the tree is by making two incisions down the trunk parallel to each other, of sufficient depth to touch the woody part of the tree. At the bottom and top of these incisions two others are made at right angles with them. Into one of the latter the blade of a sharp instrument is introduced, and the cut portion gently raised up and separated from the tree. The first piece having been removed, the operation is simple and easy, in consequence of the sap or gummy matter before mentioned flowing between the bark and the wood. The tree is thus completely stripped, but does not long remain in its naked condition before a reproduction of the parts removed commences. The liberated pores exude the viscous matter already mentioned, which diffuses itself by a slow but unerring process round the surface of the trunk. This is uninterrupted for eight or ten years, when the new covering, more elastic and less porous than the former crop, may be again removed. The operation is generally made between the middle of July and the 15th of September, while the sap is full and vigorous, which facilitates the detachment of the bark from the tree. Should the weather be cold, rainy, or changeable, much caution is requisite, for the tree would be injured, and the following crop rendered weak and bad.

After the barking above described the pieces or plates are collected and stacked in square masses in some dry place, where they remain for two or three months. In drying they lose about one-fifth of their weight. In some places, when the pieces are detached, they are soaked in water, and, when nearly dry, are placed over a coal fire, which blackens their external surface, and conceals a number of blemishes and cracks, which are filled up by the burnt portions and dirt. This, however, seems to be the trick of the venders.

When wanted for the manufacture of corks, the pieces are placed in water in order to soften the outer bark. When sufficiently moistened this is removed by a sharp knife, plane, or hatchet, as the case may be, for those portions which have been more under the immediate influence of the atmosphere, and have become blackened by hail, rain, or heat, are more difficult of removal than those not so exposed. After this preliminary operation they are then plunged into boiling water for a quarter of an hour or more, to render them softer, more elastic, and easy to cut by the knife of the workman. Those that are not used at once are piled together in a cold place, ready for use.

Corks for bottles are cut lengthwise of the bark, in long, four-sided pieces, the breadth varying according to the thickness of the bark; consequently the pores lie horizontal, and are much better adapted to keep out the air than bungs, or very large corks, which are cut in an opposite direction. The workman with a broad, thin, sharp knife, his only instrument, reduces the elongated square pieces into octagons by cutting off the four edges, and so proceeds until the cylindrical form is obtained; a few strokes by an expert hand is sufficient for this purpose. The refuse cuttings are preserved, and sold for the manufacture of Spanish black, and other purposes.

The elasticity of cork renders it valuable for stopping vessels of different kinds, and seems to have been used by the ancients much in the same way as we do at the present time. Its adaptation to glass bottles was introduced about the fifteenth century; but to other and varied purposes it has also been applied. Coffins were made of it by the Egyptians. Many of the houses in some parts of Spain have their walls lined, with it to prevent the admission of damp. It is introduced between the soles of boots for the same purpose. Cushions for billiard-tables have been made from it for its elastic qualities, and, for its lightness, cork legs, floats for fishing-nets, buoys, and life-boats, on the principle of the old German life-jacket, for preservation in case of shipwreck.

THOUGHTS UPON ART.

We speak of nature and of imitation, and afterwards inquire respecting the beautiful in nature. The most perfect beauty is there, without doubt, but how is it to be recognised? By what rule shall we regulate what is, and what is not beautiful? Where is that rule to be found? and how is that rule to be applied?

Supposing the object given be, for example, the finest tree in a forest, generally recognised as the most perfect of its kind. For the purpose of drawing this tree, I view it on every side; I seize upon that which I consider the finest aspect; I place myself at a convenient distance to observe more fully the whole effect; I attend on a favourable day; and, after all this, you believe that much which belongs to the real tree will be upon the paper.

It may be pardonable for the uninitiated thus to think and believe; but with the artist, who is possessed of the secret of his art, it is impossible to fall into such an error.

Precisely as it is in nature, there is in every work of art an exterior and an interior existence.

The world in which we live is ours inasmuch as it possesses an affinity for us—a relationship to man. We only esteem art to have gained that position which it is right that it should have when, like nature, it possesses this secret affinity, this relationship to man.

We cannot expect to obtain success in the higher studies of art without a careful and minute examination of every minor natural detail.

We are convinced of the necessity of these minute studies for the sculptor and the painter. It is true they cannot be effected without much time and trouble; but he who loves his art will not grudge either, and will not consider that time and trouble misapplied which is spent in so laudable an exercise.

There exist in nature many objects which, considered alone, present the character of beauty. Talent consists in discovering these beauties, in discovering their harmony with each other, and by uniting them, effecting a beautiful work of art. A butterfly resting on a flower—a bunch of roses in a vase, the vase which contains them in itself beautiful—the foliage of a tree—the irregularities of a rocky height—a fountain—a mansion—may all possess a great charm and beauty. It is the same with the human figure, and with animals of every kind.

The young artist will find it most to his advantage to study in this way by a careful observation of natural objects, and a skilful combination of those which are calculated for harmonising with each other. Compositions of this sort deserve not only the name of talent, but of invention.

We asked a young German painter, who had studied for a long time in Italy, what was the reason that their landscapes possessed so much enchanting beauty; so much that was true and yet so much harmony over the whole. He answered, it was their close study of nature.

Every artist must have love for his art. He must have a natural talent; but a great deal depends upon the education he receives. His faculties are developed by his parents and teachers: an immense amount of labour is required, and his style is not altogether formed by his genius. *Nature* presents him with his noblest lesson. And, though exciting his natural talent, it is the objects by which he is surrounded that afford him the best studies—that furnish him with form, proportion, movement, light and shadow.

The great masters were never betrayed into error by a false idea of originality. They studied nature closely, earnestly, constantly: and it is this close and careful study which imparts so much freshness and beauty to their works.

A PYRAMID OF STAGS' HORNS.

In the vast continent of North America exist many considerable tracts of treeless land called prairies; these consist of low flat plains of apparently interminable limits, with little or no verdure, and few shrubs or trees except upon their extreme boundaries. Sometimes, however, the prairie assumes the form of an immense field of waving grass, broken here and there by sandy patches of dry and desolate waste. The prairies form the hunting-ground of the Red Indians—those interesting tribes so fast disappearing before the foot of the white man. It is a curious and a sad fact, and one which has often been noticed, that wherever the whites appear, the savage inhabitants of the soil recede. The Anglo-Saxon comes and the Indian vanishes mysteriously from the scene: the Englishman advances and the red men go back, back, deeper and deeper, into the hitherto inaccessible forests, and almost boundless wastes of the far west, only to become fewer and fewer in number, till they are lost at last—swallowed up and absorbed by a relentless civilisation, and at length forgotten even in name. In a few years, perhaps, the buffaloes that range in countless herds upon the western prairies of America will become as scarce as their Indian hunters now!

On this subject Cooper, the best of the American novelists, and Longfellow, the prince of American poets, have both remarked in eloquent strains. Observing an Indian chief in the streets of a western city, Longfellow thus addresses him—(we quote from memory):—"Gloomy and dark art thou, O Chief of the mighty Omawhawks; gloomy and dark as the driving cloud whose name thou hast taken! wrapped in thy scarlet blanket I see thee stalk through the city's narrow and populous streets—as once by the margin of rivers, stalked those unknown birds that have left us only their footprints. What, in a few short years, will remain of thy race but their footprints? How canst thou walk in these streets, who hast trod the green turf of the prairies? How canst thou breathe in this air who hast felt on thy cheek the sweet breath of the mountains? Ah! 'tis in vain, that with lordly face of pride thou dost challenge looks of dislike, and question these walls and these pavements, claiming the soil for thy hunting-grounds, while down-trodden millions starve in the garrets of Europe, and cry from their cellars and caverns, that they too have been created heirs of the earth and claim its division! Back then, back to thy woods, in the regions west of the Wabash; for there as a mighty monarch thou reignest: there thou art strong and great, a hero and tamer of horses; there thou chasest the stately stag, and thy tribe acknowledge thee a Brave among Braves. Hark! what murmurs arise from the heart of those trackless deserts. Lo! the big thunder canoe, that steadily breasts the Missouri's merciless current; and yonder, afar on the prairies, the camp-fires gleam through the night, and the cloud of dust in the gray of the daybreak marks not the buffalo's track! It is a caravan whitening the desert. Ha! how the breath of those Saxons and Celts, like the blast of the east wind, drifts evermore to the west the scanty smoke of thy wigwams!"

On a prairie, at or near the junction of the Mississippi and Missouri rivers exists the pyramid shown in the engraving. It consists entirely of the horns of stags, and is of such antiquity, as to have given the name to the surrounding district, which is here called the Stags' Prairie. The white people have, as yet, scarcely penetrated so far into the interior of the country. No towns or settlements exist here, and only a solitary traveller now and then crosses the desert. But occasionally an adventurous New England trapper, or a spirited artist, like Banvard, or a restless Englishman—and restless Englishmen are to be found all over the world—gazes on this singular and remarkable monument. Of its origin there is nothing known but that it is Indian; and, it is said, that the hunters among the red men have a kind of superstitious veneration for it, and are in the habit of adding to its dimensions by the gift of an occasional horn or two. It is so compactly constructed that we are told it is difficult to extract a single specimen without disarranging the entire mass. It is not improbable that the original formation of this very curious pyramid had something to do with the worship of the Indians, or was connected with the memory of a famous chief among them. The various tribes of red men have peculiar methods of disposing of their dead; sometimes exposing them on the tops of high rocks, with the faces turned to the rising sun; sometimes swathing them in the garments they wore in their lifetime, and laying them on high platforms raised on poles, or in the arms of trees, and sometimes, in the cases of remarkable chiefs, placing them upright, as in life, in their favourite canoes and turning them adrift on the waters of a rapid river. It is not unfair, therefore, to conclude—though we have no actual warrant for such a supposition—that this strange erection of stags' horns had originally some connexion with one of their religious ceremonies.

The Mississippi, or "father of waters," as the Indians have appropriately called it, is the largest river in the world, and the most varied in its character and scenery. It takes its rise, it is said, in two small lakes (in about 47° north latitude, and 90° west longitude), which are supposed to be about fifteen hundred feet above the level of the sea. The Missouri, or "mud-river," in the language of the Indians, has its source in the Rocky mountains, is about 45° north latitude, and 100° west longitude, and falls into the Mississippi at about the 38th degree of latitude. The two rivers united flow through scenery the most grand, romantic, and picturesque that can be imagined, and at length empty themselves into the Gulf of Mexico by several mouths, at New Orleans, the capital of the southern states of the American Union.

The length of the Mississippi—for the Missouri is considered by many to be its true source—is not less than 4,500 miles, and it is navigable at all seasons of the year considerably above its junction with the latter river, or above 2,000 miles from the sea. In its passage it receives many tributary streams, which are themselves great rivers; as, for instance, the Ohio, Winconsin, and Illinois on the left, and the Desmoines, St. Peter's, Arkansas, on the right; till, at its widest part, it is nearly three miles across, its medium width being about three-quarters of a mile, and its average depth about a hundred feet; its waters travelling to the ocean at a velocity averaging nearly 70 miles a day.

The shifting character of the waters of the Mississippi has frequently been observed by travellers; and traces of the river's deviation have been observed at more than a hundred miles from its present course. The rich alluvial soil is constantly breaking away before the strength of its ever-flowing current. Immense trees are often carried irresistibly onward, till, meeting some obstruction, their branches fasten in the bed of the stream, and form those "snags" and "sawyers" so dangerous to navigation. The "snags" are those large trees which are broken down from the banks, and, being loaded with soil at their roots, grow for a time in the bed of the river. They are very dangerous, as perhaps only a point is seen above the surface; but this point sometimes enters a ship's timbers, and occasions loss of life and property to a great extent. The "sawyers" are those trees of a lighter and more umbrageous character, which partially float in the water, and vibrate, or "see-saw" with the action of

the wind and tide: hence their name. Vessels pass over these without danger. The United States' government have frequently cleared the Mississippi of these obstructions to the navigation; but the task is expensive, and will be for many years incessant.

But that which excites the surprise of travellers more, perhaps, than anything else, is the remarkably strange way in which the current of the Mississippi takes its course—sometimes winding out of its track for miles, breaking away its ancient landmarks, forming new islands, and destroying old ones; sometimes forcing its way through great tracts of country, and producing huge peninsulas and headlands,—points and bends as they are called,—and at others rushing for hundreds of miles through flat, monotonous prairies, and spreading itself, a damp, unwholesome swamp, over an extent of country comprising more acres of rich land than the whole county of Yorkshire. But, while old land is being washed away, new surfaces are constantly forming; and thus, while it destroys in one place, it creates in another, with an impartiality which is as puzzling to the colonist as it is disadvantageous to his interests.



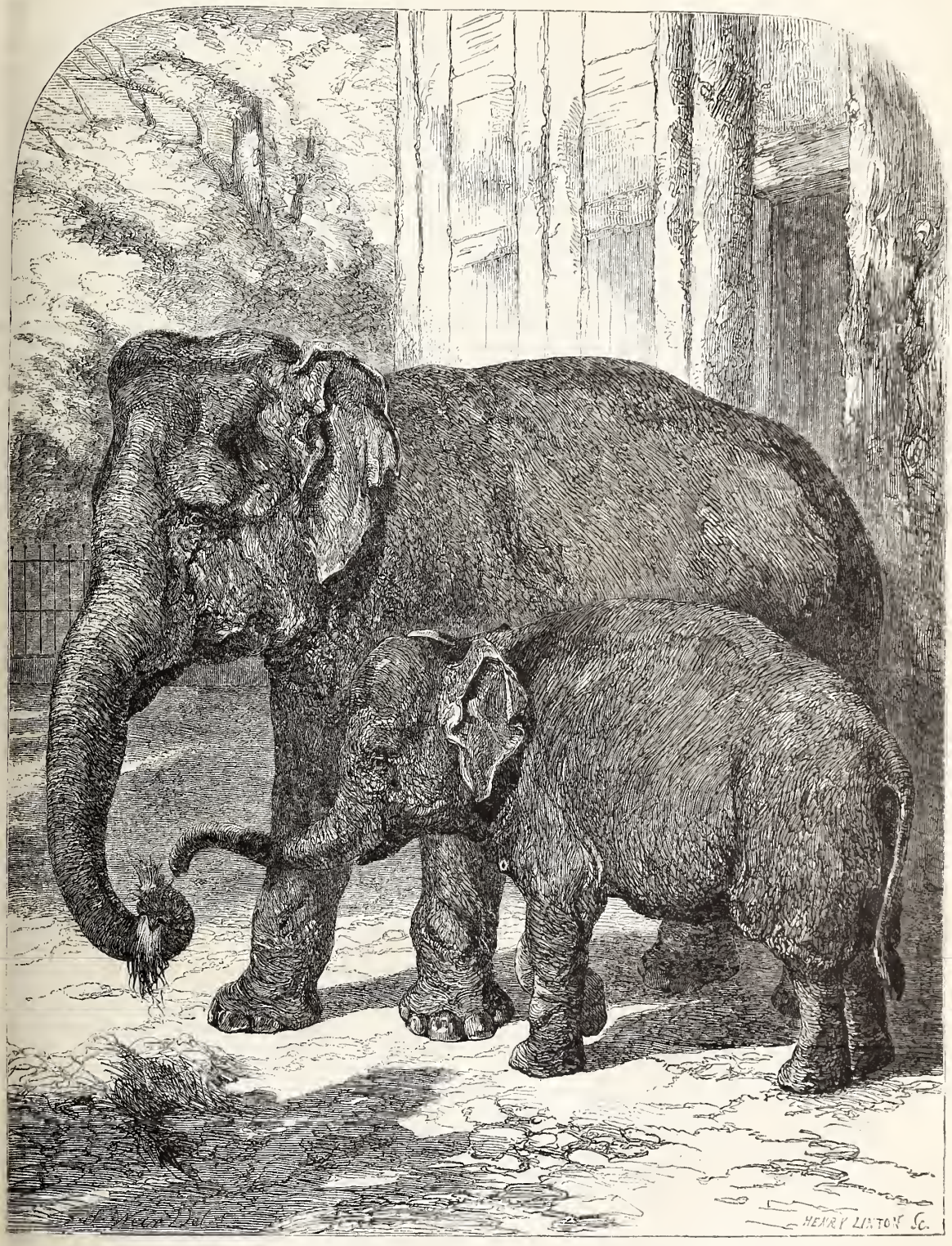
PYRAMID OF STAGS' HORNS ON THE STAGS' PRAIRIE.

As to the probable origin of prairies, there have been many curious reasons advanced—some supposing them to have been produced from the practice the Indians have of annually firing the herbage, and thus destroying the grown timber; and others concluding these immense tracts of treeless land to have been the ancient floor of the ocean. The latter suggestion would appear to be the true one, from the fact that the soil beneath most of the prairies in America, consists of broken-down shells and marine matter, accumulated into local beds and extensive hills, deposited in the manner in which we know that the oysters and other testaceous families accumulate their shells. The soundings of the ocean, all over the world, presents an irregularity of surface precisely similar in character. The accumulations described as being common to the prairies, were found by Mr. Featherstonhaugh to be "more or less covered with a vegeto-animal deposit, probably derived from fuci, algæ, molluscæ, and other vegetable and animal productions of the ocean, that by the constantly acting power of the elements had been partially removed and carried by rains towards the lowlands and streams." Hence, this covering, which had originally been deposited, is now diminished in some places and thickened in others.

When the ocean abandoned these areas they were of course without plants, &c. Now, by whatever method plants first begin to take possession of the soil; whether by spontaneous growth or by the agency of seeds transported thither, they are, when the vegetable matter is thin and the season unfavourable, liable to perish; and even when they are not thus exposed, it is to be remembered that these prairies were overrun, as the most distant western prairies are now, by countless herds of buffaloes, which by their periodical occupation of the country, would assist in destroying young trees and plants of a vigourless constitution. These may be enumerated amongst the efficient causes of the prairie, or meadow state of extensive tracts of country,—a view of the subject which is somewhat strengthened by the admitted fact of plants in modern times encroaching on the prairies; for it is now observed that they now begin to flourish where vegetable matter has accumulated, being secured from the devastating teeth of the buffalo, which animal, like the Indian, disappears as soon as the white man settles near his haunts.

This way of accounting for the immense prairies of North America, and the pampas of the South, seems more natural and just than the conjectural opinions founded on the convenient method adopted by the Indians to secure their game; a method which they have successfully practised at all times—to burn th cane and high grass in the upland forests,—and which has somewhat thinned but not destroyed the herbage, as may be seen from the fact that the open woods of Tennessee, Kentucky, &c., have become thickly covered with verdure since their abandonment by the Indian tribes. Instead of having been denuded by fire, therefore, it seems fair to conclude, both from geological and natural evidence, that the prairies of the western part of America have never, since the ocean abandoned them, been covered with any vegetables of greater importance than the gramina.

ELEPHANTS.



THE ELEPHANT AND CALF, AS SEEN IN THE ZOOLOGICAL GARDENS, REGENT'S PARK. DRAWN BY WEIR; ENGRAVED BY H. LINTON.

When Oliver Goldsmith was writing his "Animated Nature," it was predicted by his leonine friend, Johnson, that the book would be as interesting as a fairy tale, and the doctor's opinion was fully justified by the result. Indeed, it could not well be otherwise. The subject of natural history is itself so deeply interesting—its details so wonderful, that they surpass the bounds of imagination, and afford a convincing proof of the accuracy of the oft-quoted axiom, "Truth is strange,—stranger than fiction." All creation is a marvel—from a star to a stone. The astronomer leads us away from the world, and teaches our minds to wander from star to star, from planet to planet, to observe the organism of new systems—the machinery of the skies—and makes us understand that far away there are stars and planets, and systems, and suns, so distant that their light has never reached

us yet. The geologist tells us of the strange mutations our earth has undergone, of hidden fires, slumbering volcanoes, of watery depths, of rocks new-formed and forming still, of stratas that proclaim an antiquity before which our oldest histories and oldest dynasties fade into comparative modernism. The botanist unveils the wonders of the flowers, so beautifully called the children of the earth, divides them into their varied species, traces the dissimilarity which distinguishes them from one another, and the similarity which establishes their oneness. Others, in forest trees, and waving corn, and grass, and herbs, attract us to new studies; others disclose to our view the mines of precious gems and precious metals; each addition filling us with wonder and admiration, till admiration is lost in adoration of the power and wisdom of Him who is the great architect of heaven and earth.

But animal life has ever greater interest for us than any other of the world's wonders. With earnest attention we look upon the marvels of a drop of water. Beneath the power of a strong magnifying lens, the drop of water becomes as a peopled city. Creatures of every shape in constant activity are thronged together in that transparent globule. It swarms with myriads invisible to the common eye. Every creature constructed with the utmost delicacy—the puny reptile perfect in every joint and muscle as the lordly brute that treads the forest depths—all in full life and motion. We remove the lens, we look at the drop of water, and lo, that scene of life and activity is gone! Marvellous it is to trace the economy of nature in these infinitely small creations, and still more marvellous to turn from them, where

"Fine are the strokes, and small in every part,"

to one of nature's mightiest forms—to the huge, powerful, sagacious Elephant.

"Nature's great masterpiece, an elephant,
The onely harmlesse great thing; the giant
Of beasts; who though none had to make him wise,
But to be just and thankful, loth t'offend
(Yet nature hath given him no knees to bend),
Himself he up-props, on himself relies,
And, foe to none, suspects no enemies."

The elephant (*Elephas maximus*, Linn.) is the most sagacious animal next to man. At the first, indeed, we might be led to conceive very meanly of his abilities, for he presents to the spectator an enormous mass of flesh that scarcely seems animated; his huge body covered with an apparently callous hide; his legs that almost seem misshapen and scarcely formed for motion; his small eyes, large ears, and long trunk, are not peculiarly indicative of intelligence. But all this vanishes upon a little examination. Linnæus was of opinion that there was only one species of elephant; but it appears, at present, there are sufficient reasons for believing that there are two, if not three, distinct species. It is a fact long since ascertained, from the structure of the grinders of the elephants brought to Europe for the sake of their ivory, that there must be two distinct species to which these teeth, so dissimilar to each other, belong.

In the "Memoirs" of the French National Institute there appears a valuable paper on the subject by Cuvier. He names the two species—*Capensis* and *Indicus*—the first inhabiting Africa, about the Cape of Good Hope, the latter India. The African kind has the front of the head convex and inclined; the tusks larger, and the perpendicular layers of enamel, which with the softer osseous matter, compose the grinders, exhibiting on the top or worn surface a number of rhomboidal spaces, which are equally observable in a transverse section of the tooth. The Elephant of Asia (*Indicus*) is larger; the front of the skull, instead of being convex, is deeply concave, and the upper part so dilated as to exhibit two pyramidal elevations; and the grinders have the enamel layers disposed in the osseous substance in distinct transverse parallel lines, instead of rhomboidal compartments.

The height of the elephant of India appears to be from ten to fourteen feet, measuring about sixteen feet from the forehead to the tail, the circumference about twenty-six, and that of the neck seventeen feet. The texture of the skin is uneven, wrinkled and knotty. The feet are undivided, but the margins terminate in five hoofs or toes. The eyes of the elephant are small, but brilliant, and capable of great expression, the ears are long, broad, and pendulous, but can be raised with great facility, and are often used by the animal as a defence against dust or insects, and sometimes as a fan. He has no cutting teeth, but four large grinders in each jaw; in the upper jaw are two vast tusks, called by some the horns of the elephant, and which furnish the finest ivory. But the most singular organ of this quadruped is the trunk, which besides answering the purposes of respiration, enables the animal to supply itself with food. It can be moved and bent in any direction, contracted, lengthened, turned all ways; it is generally about eight feet long, five feet in circumference near the mouth and eighteen inches near the extremity; it is cartilaginous, is formed of multitudes of rings, and is like a pipe of an irregular conic figure, widened at the end. The elephant is very careful of his trunk; indeed it is to him as a hand, his organ of feeling and smell, both of which senses it has in the most exquisite degree and its strength is matchless.

The first, or milk tusks of an elephant never grow to any considerable size, and are shed between the first and second year, at which time they do not exceed two inches in length. The permanent tusks which succeed do not take their rise so deep in the jaw. "The largest tusks," says a traveller, "I ever saw in Bengal did not weigh more than seventy pounds;" but there are some in the India House, and other places which weigh more than one hundred and fifty pounds. In some female elephants the tusks are so small as not to appear beyond the lip; while in others they are almost as long and large as in the male.

Elephants are said not to attain their full growth till they are thirty years old. Their longevity is well known; even in a state of slavery and labour some have lived more than sixscore years. Their ordinary food consists of herbs, the tender branches of trees, fruits and grain. They often sleep standing, but are not incapable of lying down, as was formerly believed. Their social disposition is such that they are very seldom found alone, but march in large troops, the females carrying their young on their tusks, embracing them at the same time with their trunk.

Wild elephants were caught and trained at an early period; since we find Arrian, who flourished about the 104th year of the Christian era, giving us an account of the manner of taking elephants in India. Indeed, half a century after the death of Alexander, in the battle of Heraclea (B.C. 280), elephants were engaged in the struggle;—

"Cuirassiers all in steel for standing fight,
Chariots, and elephants indorsed with towers
Of archers."

The history of the Maccabees informs us, that in the army of Antiochus, "to every elephant they appointed a thousand men, armed with coats of mail, and five hundred horsemen of the best; these were ready on every occasion; wherever the beast was, and whithersoever he went, they went also; and upon the elephants were strong towers of wood, filled with armed men, besides the Indian that ruled them." Although Cæsar does not allude to the fact in his "Commentaries," it is generally believed that he brought elephants with him to England, and that they contributed to his conquest of our predecessors. An old writer tells us that Cæsar having attempted unsuccessfully to cross the Thames, fenced a large elephant which he had with him with a coat-of-mail, built a large turret on it, and putting up bowmen and slingers, ordered them to pass first into the stream. The Britons were terrified at the sight of this unknown and monstrous animal and fled in the wildest confusion.

In the bloody games which Greece and Rome instituted elephants were introduced. In stately show those huge animals bore a conspicuous part.

"Trampling the snows
The war-horse rear'd, and the towered elephant
Upturn'd his trunk into the murky sky."

In the year 802 an elephant was sent to Charlemagne by Haroun Al Raschid, calipb of the Saracens. During the middle ages little or nothing was known of these animals, except through the inaccurate representations of them upon medals. Up to the revival of letters, and indeed till the end of the sixteenth century, the people of Italy, whose ancestors had been so familiar with the quadruped, accounted all that was said about his sagacity as a fable, and had

no idea of his form except of its vastness. Louis IX. of France sent an elephant to our Henry III., which was probably procured from some of the African chiefs at the period when the French king invaded Palestine by the way of Egypt. This elephant was kept in the Tower of London; and the king, in a precept to the sheriff of London, says, "we command you, that, of the farm of our city, ye cause without delay, to be built at our Tower of London, one house of forty feet long, and twenty feet deep, for our elephant." Pope Leo X. was presented with an elephant by Emanuel of Portugal; and we read about the same period of another at the Court of the Queen of Bohemia. Even two hundred years ago, when Sir Thomas Brown wrote his "Inquiries into Vulgar and Common Errors," he states it to have been the prevalent opinion that the elephant had no joints, and never lay down. In an old natural history* it is gravely asserted that "the Olefaunte boweth not the knees;" and so in an old play a woman is described as "stubborn as an elephant's leg in bending her." While even Shakspeare says, "The elephant hath joints but none for courtesy; his legs are legs for necessity, not for flexure."

The contrivances for taking elephants are various; but perhaps the most curious are those employed by the natives of Ceylon. These people sometimes surround the woods in bands, and drive with lighted torches and the clangour of trumpets, the discharge of fire-arms, and noises of every description, the animals which inhabit them, till they are at length entrapped into a particular spot, surrounded with palisades so as to prevent all escape. At other times, a kind of decoy, or female elephant, is sent out in order to induce some of the males to pursue her, who are by that means secured. When a wild elephant is taken, it still remains to reduce it to a quiet state and to tame it, in order to its being made useful; this is effected by the most careful attention to its wants, by all its necessities being diligently supplied; it has abundance of food and drink, its skin is kept cool by the continued application of water; the flies that irritate it are driven off: one man, its intended keeper, is always about it soothing the animal by kindness, until at last it yields entire submission, and is permitted to join the troop.

The anecdotes recording the sagacity, and also the amiable qualities of the elephant are numerous. At Adsmeer, an elephant who often passed through the bazaar or market, as he went by a certain herb-woman, always received from her a mouthful of greens; at length he was seized with one of his periodical fits of rage, broke his fetters, and running through the market, put the crowd to flight, and, among others, this woman, who, in her haste, forgot a little child she had brought with her. The elephant recollecting the spot where his old friend was wont to sit, took up the infant gently on his trunk, and placed it in safety on a stall before a neighbouring house. At the same place another elephant in his madness killed his *cornac* or governor: the wife witnessing the misfortune, took her two children and flung them before the elephant, saying, "now you have destroyed their father, you may as well put an end to their lives and mine." Its rage instantly abated, and taking the eldest of the boys it placed him on its neck, and adopted him for its governor, never afterwards permitting any other person to mount.

The elephants, which from time to time have been exhibited in London, afford evidence of the teachable character of their dispositions. Old Chunee, whose tragic end is so well known, was remarkable for his sagacity and intelligence. As an instance of that animal's subjection to his keeper, it is stated that amid the crashing of timbers, the hallooing of the keepers, the call for rifles! rifles! and its own deranged condition, he still recognised the voice of his keeper, and at the words "Bite, Chunee! bite!" which was his ordinary command to the elephant to kneel, he actually knelt, and in that position received his death-wound.

The sagacity of the elephant is alluded to by Gay, who says,—

> "Borri records their strength of parts,
> Extent of thought and skill in arts;
> How they perform the law's decree,
> And save the state the hangman's fee;
> And how by travel understand,
> The language of another land."

Elephants do not merely obey the commands of their keeper while he is present, but they perform also in his absence the most singular operations when they have previously been made acquainted with the nature of them. M. d'Obsonville says, he once saw two elephants employed in demolishing a wall in obedience to orders previously received from their cornacs. They united their powers, placed their trunks together, which were defended by a covering of leather, and pushed with them against the strongest part of the wall; repeated their efforts, carefully watching at the same time the effect upon its equilibrium, they exerted themselves till the whole was sufficiently loose, and then uniting their whole strength in one more push, speedily retreated, while the wall fell with a tremendous crash.

We have said thus much about elephants in general, but the remarks have been suggested by the exhibition of a female elephant and calf at the gardens of the Zoological Society. Our artist has given a faithful sketch of the interesting pair. The elephant mother stands seven feet high. She was bought at the fair of Cawnpore, in India, in August, 1850. The young elephant was born on the march between that place and Calcutta, about a month after the purchase of the mother. Toward the end of the year they were shipped at Calcutta for England, and arrived at the Regent's-park Gardens on April 18, 1851. The young elephant is a female, and has grown fifteen inches since her settlement in England. She measures at this time, five feet two inches at the highest part of the back, and about four foot eight at the shoulder. At the most tender age the calf differed very little in appearance from an adult, and the only indication of infancy was in its smaller size. That the young elephant sucks with its mouth is now distinctly ascertained; she takes the teat at the side of her mouth, and gently presses the udder with her trunk which encircles it. It is somewhat humiliating to the pride of human knowledge that a matter apparently so simple should at any time have been in doubt. The elephant never lies down to suckle her calf. Sucking will probably be continued for some time longer, although the young elephant feeds quite as well as the mother, upon hay, corn, bran, chaff, bread, or dainties offered by the visitors. It is a pleasant thing, especially in this hot season, to observe them take their bath. The excellent accommodation afforded by the society enables them to enjoy this luxury, which they do most thoroughly enjoy, going down, down, down, into the sloping basin, indulging in the most vivacious gambols, and affording one of the most interesting sights in the garden. After bathing, they frequently roll in, and cover themselves with liquid mud, and the tracts which they leave in the soft earth which surrounds the hole, which they have made for the purpose of taking their mud bath, furnish one a good idea of the "spoor" which refreshes the eyes of the elephant hunter at a South African water-hole; for although the species of elephant and rhinoceros which are placed in the Zoological Society's Gardens are those of India, their habits are identical with those of the African animals of the same genera.

The tenderest affection appears to subsist between the elephant and calf. And this is commonly the case; Bruce relates an account in which, when hard pressed, a young elephant came boldly out to defend its wounded mother, and ran upon the men and horses, heedless of its own life or safety, till one of the hunters ran it through with a lance.

The calf of the elephant follows its mother with great perseverance, although it is ready enough to frisk about as if it had the lightness of a kid. Mr. Williamson says, "The calves are extremely playful, but possess great strength, rendering their gambols rather dangerous." And Tavernier has an agreeable passage describing their mode of play: "When merchants bring elephants to any place for sale, 'tis a pleasant sight to see them go along. There are old and young together, and when the old are gone by, the children run after the little ones, and leap upon their backs, giving them something to eat; but they, perceiving their dams are gone forward, throw the children off without hurting them, and double their pace."

* "The Dialogues of Creatures Moralised."

NEEDLE-MAKING AT AIX-LA-CHAPELLE.

THE POLISHED NEEDLE.



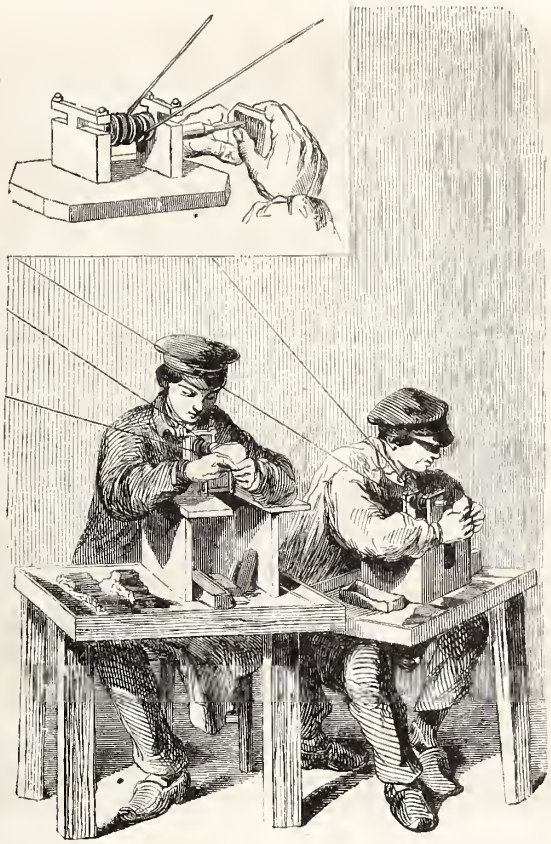
CASE-HARDENING THE NEEDLES.



TEMPERING THE NEEDLES.

A RUSTY-LOOKING soft instrument is the rough needle; the long series of processes through which it has already passed have only been preparatory to another series—the hardening comes next. This operation consists of nine processes. The needles are bound in bundles containing about 500,000; and in these separate bundles are carried to the annealing workshops. This department contains,—1st, a furnace provided with a grille for receiving the charcoal, and two barriers of earth which support the plate in which the needles are placed, and a chimney with a regulator, which controls the heat of the fire. 2. Two copper cauldrons always filled with water, and provided with a tap. 3. A table upon which are disposed the bundles of needles and the plates upon which they are arranged, besides other apparatus. The needles are then placed by a workman upon the plate—six thousand on each; these are arranged as parallel as possible.

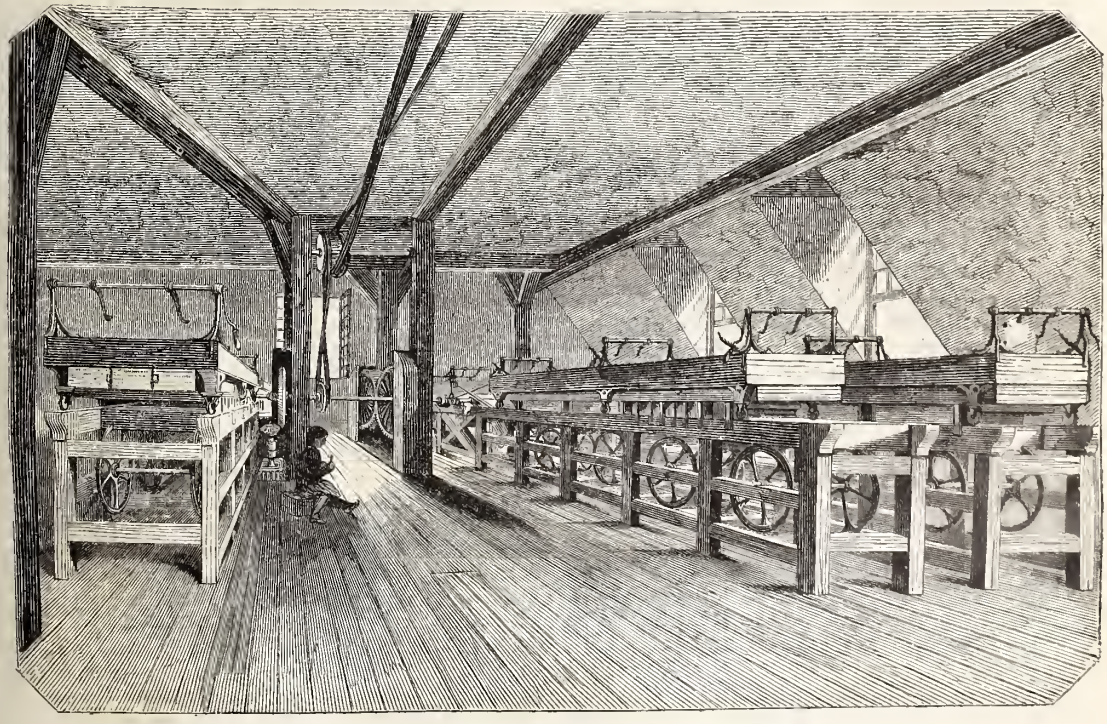
The hardening is then commenced, by the two plates containing the needles being placed in the furnace, and permitted to remain there until they are red-hot—in that condition they are plunged into the troughs of water. From thence they are taken and cast into a box appropriated to that purpose. In that box they are arranged, as before stated,—namely, by an oscillating motion of the whole.



DRILLING, OR PERFECTING THE EYE OF THE NEEDLE.

Next they have to be tempered—for although they have gained a certain degree of hardness, they possess no elasticity—the tempering is managed by heaping them together on one of the metal plates, when one of the operatives, with a metal rod, shifts them about, taking care that each of them may obtain the same degree of heat. Again are they arranged in the box or tray, until they again lie point to point, and the needles which have been injured in the process having been removed, they are ready for another operation—that is polishing.

Polishing is the longest operation in the fabrication of needles. Of course they cannot be polished one by one; but the operation must be performed upon thousands and millions. To this end they are arranged in rolls, confined by a very coarse cloth—and are submitted to polishing, 500,000 a ta time, in a machine which is directed by one man, being moved by a current of water, polishing at once twenty or thirty packets, containing, it is said, fifteen million needles. The principal process of polishing is subdivided into three series of operations: the first consists in forming the packets or rolls; the second in placing them upon the polishing table; the third in scouring the needles. The principal instruments and machines used in polishing are,—1st, a table furnished with a trough for the rolls or packets



NEEDLE POLISHING.

of needles; 2nd, a machine or mill—not unlike a mangle—for polishing; 3rd, a movable tun for scouring, which turns on its axis; 4th, a copper sieve; 5th, a copper barrel, which also moves on its axis.

When the needles have been properly hardened and tempered, they are carried to the department devoted to the making of the bundles which are to be polished. They are spread out on a coarse cloth, and some coarse material, such as emery, is spread over them, upon which oil is sprinkled—and besides this some portion of soap is occasionally added. When this preparation has been completed, the needles are rolled up with the cloth around them—the ends of which are securely fastened, and the bundles are then removed to the polishers. They are then submitted to a process very like mangling—a heavy, movable pressure being brought to bear upon them, which completely crushes the emery, and, by the constant friction, begins to add the desirable polish. This process is sometimes continued for twenty hours. From thence they are taken to the tun and undergo a continuous rotary motion for several hours. They are then winnowed in the copper sieve, shaken again in the copper-mill, released from their covering, re-emeried, re-oiled, re-done up, re-mangled, re-winnowed, again and again, until at last the needles are capable of brightness.

The best needles are polished no less than six times, and are then thoroughly cleansed with hot water in the copper vessel before mentioned; and when all this is over, they are submitted to another hand process, in which one of the workmen removes all those needles which have been injured in the previous operations, and lays them aside by themselves. Another workman spreads them on a table, and rejects those whose heads have been snapped off, or whose eyes have been broken. Another attends to the examination of the needles, as to the polish they have received; another separates those whose points have been broken off. Another having selected those which have been bent in the "mangling," straightens them by means of a small hammer and a wooden anvil—while another separates the needles according to their varied lengths into three parcels; and this seemingly tedious operation is performed with the most wonderful accuracy and expedition. A child is then employed in arranging the needles upon a copper table, with their heads outside, and one of the workmen applies underneath the heads a bar of red-hot iron; this produces a shade of blueness on the needle, and adds to the upper portion a certain additional degree of hardness very useful in the succeeding operation. The eye has been already made—but very imperfectly—and the process of drilling is now begun. This handwork requires very great delicacy and minute attention, and the promptitude with which the workmen proceed is really marvellous. The needles are placed upon a little plate of copper held in the hand, and thus they are submitted to the drill, which scarcely appears to touch them before they are removed, and fresh needles arranged upon the plate. Then follows the burnishing. This is the last operation in the manufacture of the needle, and is esteemed of great importance. It is done by handwork, and consists in giving to the needles the final polish with a buff and certain polishing powders. And there before us lies the polished needle, different, indeed, from the piece of iron wire which we noticed in the coil, and showing us what can be made of the most seemingly inconsiderable object. There it is!—a beautiful specimen of mechanical skill, with its sharp point, its well-wrought eye, its shining length as bright as a sunbeam; there it is!—ready for the hand of the needlewoman, and prepared to

"Stitch, stitch, stitch."

There it is! the most useful weapon in the world—having passed through a wondrously eventful career since it first entered Aix-la-Chapelle—since the wire was chosen and heated in a red-hot furnace, plunged into water, tested, examined, scoured, oiled, and re-submitted to the wire-drawing process; it has been cut, and heated and straightened, and weighed and gauged, and rubbed and counted, and pointed at first end and pointed at last end—while it was yet a twin-needle—measured and clipped, and arranged and filed, and washed and stamped, and pressed and flattened, and printed and punched, and cleaned and grooved, and fashioned and filed, and twirled and sorted, and marked and rolled, and pressed and rearranged. And when all this was over, heated again and plunged into cold water, and fried upon a hot stone or heated iron plate, and tied in bundles with oil and emery, and soap, covered with a towel and shaken, and mangled and twisted, and pressed, and cast into a copper sieve, and winnowed and sorted, and picked and heated, and drilled and polished, once again, before its education was complete; passing, in all, through the hands of eighty workmen!

The needles are now ready for packing, and this operation is subdivided into many others.

1. The paper of which the packages are to be made is arranged. It is three times the length of the needle, generally of a blue or violet colour, and made of such material as is best adapted for resisting all wet or damp.

2. A child is employed to make the first fold or crease in these papers, and to place them in tiers.

3. A workman counts out a hundred needles, which he places in a scale and weighs; their weight forms the regulator for the succeeding hundreds, as, instead of counting, they are weighed, and placed by him in the papers appropriated to that purpose.

4. A workman takes the papers and completes the folding, and they are then placed in a box numbered with the numeral by which the needles are distinguished.

5. The packets are inscribed with the number of the needles, the name of the maker, and the particular mark adopted for each species and each quality of needles. For certain needles the packets are distinguished by a small stamp.

6. Ten of these packets, containing one hundred needles each, are made up into thousand-needle packets, in an envelope of blue or violet, with a white fillet around it, upon which the character, and other particulars respecting the needles, are marked.

7. Still larger packets are made of fifty of these thousand packets, which are enclosed in a white paper cover, around which is placed a covering of dried ox-bladder, which is itself enveloped in a gray cloth, on which is written the number of the needles, with a mark to indicate their quality.

WORD-WISDOM.

Napoleon used to call all literary men "phrasemongers." Poets, historians, dramatists, essayists, all were included in this rough nomenclature. But the definition had in it but little of philosophy—words and phrases are but the tools of the literary man—the means by which he communicates to others the truths he has to tell. It is very possible for a man to have great power of language, to be enabled to clothe his thoughts in choice and accurate expression, and yet have no thoughts to clothe, at least those thoughts which would be valuable to society. It is also very possible for a man to have a vigorous understanding, a powerful imagination, a keen perception of the truthful, and yet fail in the art of rhetoric—the making visible the invisible through the medium of utterance. Mute Milton's and silent Shakspeare's may in this sense be supposed to live—crowded storehouses without doors—possessing natural abilities and cultivated minds without the required powers of communication.

To such, word-wisdom is the one thing needful; they must be thoroughly acquainted with the language of the people they have to instruct; they must leave the ideal and the profound for the commonplace study of the dictionary; they must view words as their only available messengers; select such as can best represent the intrusted idea—not committing several thoughts to the guardianship of one word, not despatching weak words to carry heavy thoughts, but carefully attending to language economics, and sending the message by a faithful embassy, that will not be likely to cause ambiguity or betray their trust.

From disregard to this necessary qualification, serious difficulty and annoyance are caused to knowledge-getting people; the author has so completely succeeded in mystifying his readers, that while one believes him to mean one thing, another is equally certain that he means exactly the reverse; the figures are so irregularly formed, the tens and units so blended and confounded with each other, that when the sum is cast up the product is never the same, and the matter ends where it began, in questions and differences about words.

Legal wisdom endeavours to obviate the evil by multiplying its words, and, understanding their frail nature, places them in company, and with so many interpreters, that an act of parliament or a bill of indictment is a perfect marvel to behold. But in popular literature, which solicits the attention of busy men, to convey every truth in such a lengthy cumbrous form, even if that form could always be depended upon, would be a useless task; for when the author had exhausted all his ingenuity in producing a wordy exposition, the difficulty would be to find a reader of a sympathising mind—a quiet, sedate individual who had no objection to look for a needle in a bottle of hay.

Some people seem to think that word-wisdom consists in magnificent and somewhat obsolete phrascology—unaccountable combinations that make us soar to the third heaven, by which our feelings are affected, and our sensibilities aroused; and we dwell in an enchanting atmosphere till the book is closed. But if we inquire what is beyond this delightful surface—what beyond this phantasmagoria of imagery, no answer can be given. Like the aerial voyagers in the old story, who are said to have visited the moon, we can only remember that there was everything to enchant, a mysterious and intoxicating pleasure, but what the commonplace realities were we cannot tell.

Now this is not to be attributed to an absence of mental power on the part of the writer. We are not gravely to assign as a good and valid reason, and at the same time as a flattering unction to our own penetration, that the author had nothing to say, and said it very finely; the writer, very probably, had gold and pearls to sell, but he had hidden them in the rubbish. The pages of such writers will never be immortal. "Literature is the apocalypse of nature," but it sometimes happens that the apocalypse becomes an apocrypha,—things hidden, and not things revealed.

Dr. Johnson understood word-wisdom, lofty and ponderous in his style, there is still nothing to dazzle or obscure. When he who made dictionaries had anything to say, he knew how to say it with propriety and power. And with his friend, Oliver Goldsmith, there was no mysticism, but an elegance and ease, a winning simplicity that makes the lovely Olivia, the gay Sophia, the sturdy Burchell, and the cunning Jenkinson, with his "ay, sir, the world is in its dotage," as people with whom we have dined and walked. Addison, with his finely-polished period—his ivory-turned sentences, never mistook sound for sense. Earlier still, John Bunyan—unlearned man as he was—found his way to the heart of all times and all people through the simple use of the Saxon vernacular. True word-wisdom consists in a thorough acquaintance with the medium of communication, a just appreciation and choice of terms, and the well-worn definition of Lindley Murray concerning orthography has, if slightly altered, its full signification with regard to bookmaking—"Rhetoric teaches the nature and power of phrases, and the just method of spelling thoughts."

MOUNTAIN TORRENT IN THE PYRENEES.

In no country in Europe do the elements of romantic interest exist in greater profusion than in the peninsula of Spain. For, whether we regard the history of the people—at one time under purely Gothic rule, for eight centuries owning allegiance to the Moor, divided into separate states and kingdoms, each one at war with the other, and at last united under one monarchy, but still one people only in name,—or, whether we consider the peculiar physical character of the country, which, cut off from the rest of Europe by an impassable barrier of mountains—

> "that like giants stand,
> To sentinel enchanted land"—

exhibits within itself a variety of climate, scenery, and national beauty unsurpassed, perhaps, by any other under heaven,—we must still regard Spain as a highly interesting, and indeed classical, land.

In Spain, the past is visible in the present, and the genius of her ancient rulers shines forth in a variety of forms; in palaces of unrivalled splendour and architectural display, in a national art which later dynasties have failed to encourage even, much less to elicit, and in a population the most peculiar, divided, and characteristic of any in Europe.

The scenery of the various parts of Spain differs in its aspects no less than the peculiar phases of national character among the people. The feeling which Englishmen call love of country, exists among the Spaniards only in a very modified degree. Peninsular man, says Mr. Ford, has everywhere followed the nature by which he is surrounded; mountains and rivers have dislocated, walled, and moated the land; clouds, snows, and suns have diversified the heavens; hence, soil, sky, and people, in each of the once independent provinces, now loosely bound together in one golden hoop, the crown of Castile, have their own peculiar character. The climate and productions vary no less than do language, manners, and costume; and as each item has a tendency to repel rather than attract its neighbour, isolation, division, and localism have, from time immemorial, formed a marked national feature.

But our business "at this present" is less with Spain as a whole, than with that peculiar portion of mountain scenery which the artist has so exquisitely delineated. As most of our readers are aware, the Pyrenees are a range of mountains dividing Spain from France, a kind of natural barrier which keeps the ambition of the latter country within proper bounds, and which, notwithstanding the policy of courts, it has been found impossible to pass; a barrier, moreover, as wide and as eternal as the hatred which the true Spaniard has for the Gaul. This great mountain-range may be said to stretch itself far beyond its mere geographical, or map limits, for the hills of Asturias, Galicia, and the Basque provinces may be considered only as continuations of the original line. At various places there have been made practicable lines of communication over the mountains between France and Spain, and the "passes" frequently possess a degree of romantic beauty of which the idea of actual danger and insecurity forms no slight feature. But what care the hardy dwellers on the hills for these? The peasant, content to pass his life away in a little homestead, perched upon the rocky side of some brown mountain whose summit is perpetual snow, is little agitated by thoughts of danger; nor does the traveller or the sportsman pause to think of fear when the excitement of new scenes and pleasures break upon his view. High up among the clouds the seeker after health and novelty may gaze entranced from dizzy cliff or hoary crag; and pass with careful step some craggy bridge, his only passage, without daring to look down upon the torrent underneath, as it leaps and dashes on its impetuous way:—

> "The rock said, 'Tarry, thou hast lost thy way;'
> The stream, 'I will go on!'—The rock again,
> 'Stand back, I tell thee!'—Roar'd the stream amain,
> 'I tell thee, let me through.'—Anon the day
> Grew midnight: no moon rose:—the stream, they say,
> Call'd, and was echoed by his kinsman rain,
> Who came in flood. With many a rent and strain,
> They cleft the mountain thorough: and their spray
> Laugh'd in the valley's lap when morning shone,
> As down they travelled both to monarch ocean.—
> O wild hill-brook that hast such marvels done,
> How weak is man's command o'er plumb and line
> E'en in his master craft, compared with thine
> Help'd by the clouds that have their fountains near the sun."

To untravelled lovers of nature a scene like the one chosen by the artist cannot but possess many charms. The stern wildness of nature—the mountains rising pale and dim in the far distance, the rugged and stunted trees clinging with desperate eagerness to the almost soil-less rocks, the sheep scattered here and there over the rough pasture in search of the scanty herbage, the noisy stream forcing its way through the narrow and precipitous defile, the cottages of the peasantry hanging as it were upon the steep hill-sides, the crazy-looking bridge of wood over which the muleteer guides the traveller and passes from village to village, the glorious sunshine piercing through the haze, the lights and

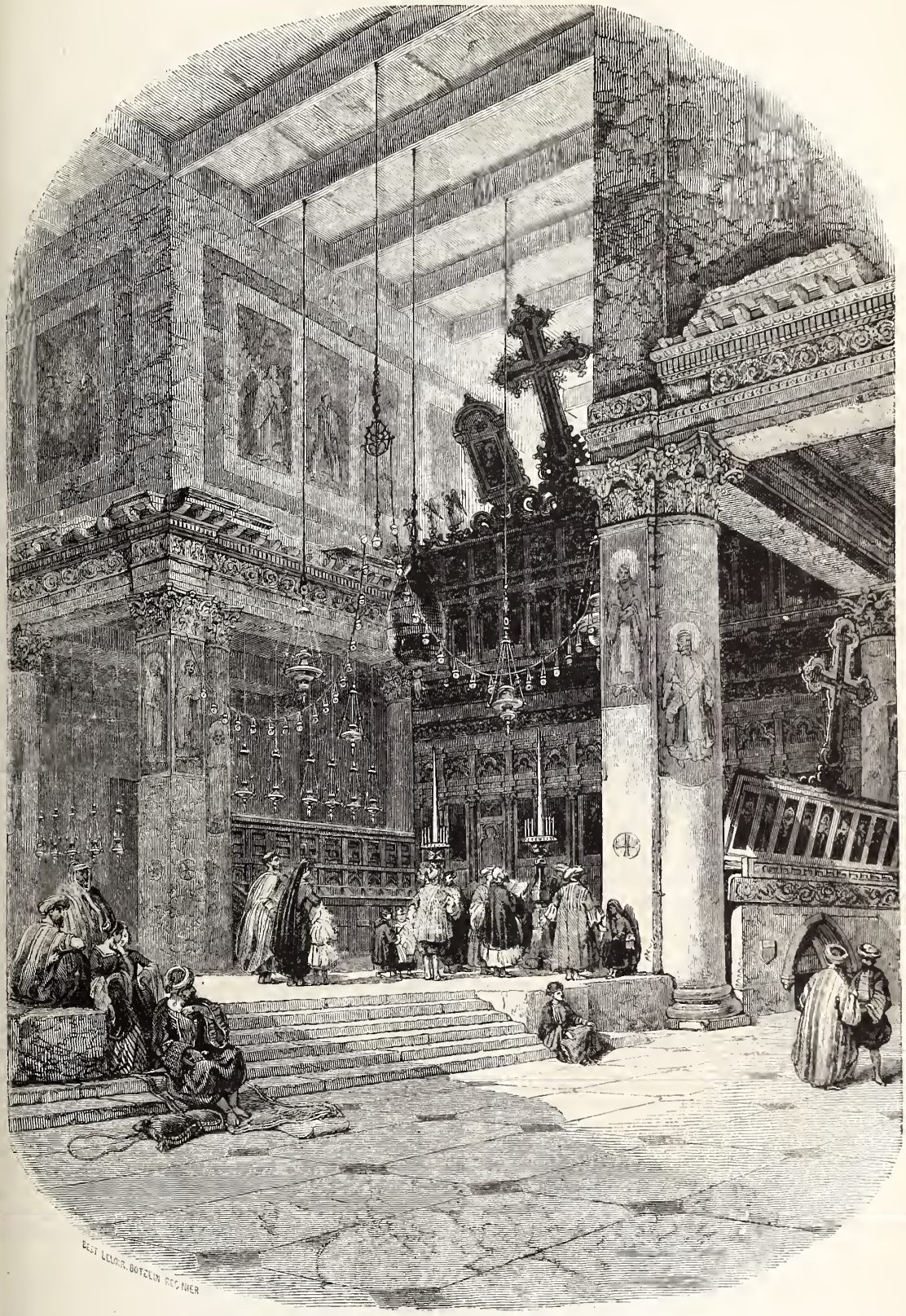


MOUNTAIN TORRENT IN THE PYRENEES.

shadows which lend a kind of enchantment to the view, the hum of insects in the air, and a thousand little incidents which tend to make the solitude more still,—all these cannot but affect the spirits in the most powerful manner, cannot but make us feel the littleness of individual man when face to face with

"God's presence flung about the world."

THE CHURCH OF THE NATIVITY AT BETHLEHEM.



Bethlehem is situated at the distance of six miles from Jerusalem. The neighbouring country is remarkably salubrious, and famous for its abundant fertility. Its palm-trees, olive-gardens, and vineyards show us that it was no unmeaning matter when the Jews of old called it Ephrata (fruitful), but that in this particular, as well as in all their other nomenclature, they endeavoured to render the name indicative of the thing signified. The water is conveyed to the town in a low aqueduct which formerly passed to Jerusalem. The *Fons signatus* is a charming spring, yielding a constant supply of water to three large cisterns, one of which is still in good preservation. At a small distance from these, a beautiful rivulet called the *Deliciæ Solomanis*, leaves the

herbage of the valley, and fertilises several fine gardens. One cannot help remembering how David once sighed for the waters of the well of Bethlehem, how he longed to quench his thirst from the fountain whose waters he had so often tasted in his boyhood. That water still retains its pristine renown, and many an expatriated Bethlemite has made it the theme of his longing and regret.

The town of Bethlehem received its name from Abraham: it belonged to the tribe of Judah, and was also recognised by the name of the city of David. The Church of the Nativity is now its principal object of attraction. A convent is connected with the church by a court enclosed with lofty walls. The court leads by a small side door into the church. This edifice is certainly of high antiquity, and though often destroyed and as often repaired, it still retains marks of its Grecian origin. The church belongs collectively to the Greeks, Latins, and Armenians. On the pavement at the foot of the altar is a marble star, which corresponds—so the monastic cicerone informs you, to the point of the heavens, where the miraculous star, which guided the wise men in the days of Herod, became stationary. The Greeks occupy the choir of the Magi, as well as the two other naves formed by the transom of the cross. These last are empty and without altars. Two spiral staircases, each composed of fifteen steps, open to the sides of the outer church, and conduct to the subterraneous church situated beneath this choir. At the farther extremity of the crypt, on the east side, is the spot where tradition reports the Saviour to have been born. This spot is marked with a white marble, incrusted with jaspar, and surrounded by a circle of silver, having rays resembling those with which the sun is represented. Around it are inscribed these words "*Hic de Virgine Maria Jesus Christus natus est.*"

At the distance of seven paces towards the south, after you have passed the foot of one of the staircases leading to the upper church, you are led to a low recess hewn out of the rock, and descend two steps into a separate crypt; here a block of white marble, is raised about a foot above the floor, and hollowed in the form of a manger. Two paces farther, opposite to the manger, stands an altar, being the very spot—so say the monks—where Mary sat when she presented the child to the adoration of the Magi. The church is adorned with pictures of the Italian and Spanish schools, representing the mysteries of the place, and among them is seen conspicuously the "Virgin and Child," by Raphael. Farther away is a spot called the Sepulchre of the Innocents.

The church is the result of the strong desire in former days—amounting almost to a passion— of erecting churches and building altars over spots rendered sacred by events connected with them in the history of the past. This passion has in some instances added to the perplexity of enlightened travellers, as it is very evident that in many cases the localities have been mistaken, and the tradition without foundation.

Adrian, the fifteenth emperor of Rome, an earnest, active, warlike, austere general, is said to have favoured the early Christians, and to have attached considerable importance to the faith they professed; but this is scarcely reconcileable with the fact that the very spots which were endeared to their affections were the localities which he most dishonoured. When the Jews attempted to rebuild Jerusalem, he killed in battle 500,000 of them; and erected on Calvary a statue to Venus, another to Jupiter on Olivet, and a temple to Adonis in the town of Bethlehem, the site now occupied by the Church of the Nativity.

To Helena and to Constantine the Great must be attributed the first erection of that church. Constantine exhibited his zeal for the religion which he had adopted, by building numerous Christian edifices, and by taking a journey to Jerusalem. While in the Holy Land he is said to have erected a magnificent church at Bethlehem. And there the church has been maintained through all the vicissitudes of the land. Many a strange scene has been enacted within and without its ancient walls. When the flower of European chivalry left their homes, and friends, and lady loves, to battle with the Turk, when—

> "Up they sprang upon the wing
> Innumerable. As when the potent rod
> Of Amram's son, in Egypt's evil day
> Waved round the coast, up-call'd a pitchy cloud
> Of locusts, warping on the eastern wind
> That o'er the realm of impious Pharaoh hung
> Like night, and darkened all the realm of Nile,
> So numberless were they * * * *
> All in a moment through the gloom were seen
> Ten thousand banners rise into the air,
> With orient colours waving. With them rose
> A forest huge of spears; and thronging helms
> Appear'd, and serried shields in thick array,
> Of depths immeasurable."—

Dauntless they crossed the deep blue waters, and, says one of their historians, "at Emmaus they were met by a deputation of the Christians from Bethlehem, praying for immediate aid against the oppression of the infidels. The very name of Bethlehem, the birthplace of the Saviour, was music to their ears, and many of them wept with joy to think they were approaching a spot so hallowed. Albert of Aix informs us that their hearts were so touched that sleep was banished from the camp, and instead of waiting till the morning's dawn to recommence their march, they set out shortly after midnight full of hope and enthusiasm."

How far back in the world's record does the history of Bethlehem extend, with what a number and variety of characters it has been connected! There Jacob came with all his wealth, and Rachel slept the sleep of death; there, with her gentle daughter-in-law, came Naomi the widow "in the beginning of barley-harvest;" there dwelt Jesse and his sons; there David tended sheep, till from the sheepfold he was called to be the shepherd of the land, and have all Jewry for his fold; the quiet town was garrisoned by Rehoboam, the foolish son of the wise Solomon; but beyond and above all these old memories, these thoughts of the past, there is one event which tends more especially to draw our attention to that part of Palestine; and whether it be in imagination that we think of the little town, or whether we indeed tread its street, or look upon Bethlehem from the valley below, we cannot fail to remember the old, old story of ONE who there was born, and whose nativity was proclaimed to watchful shepherds in the field at night, by angels in the air.

POPULAR ERRORS, PREJUDICES, AND SUPERSTITIONS.

CHAPTER III.

We again revert to errors and prejudices in Natural History; the ant, the beaver, the ass, bees, the cat, and the hog, have already engaged our attention, next comes

The Chameleon.—Who has not heard it stated as a truth that the Chameleon lives on air, and that he constantly changes his colours, as some say, to his own caprice and love of astonishing the spectators; or, as others say, with a greater show of reason, according to the colours of surrounding objects? All these statements are mistaken ones. The food of the Chameleon is certainly a light diet, but not quite so unsubstantial as the air; he lives on small insects, principally flies, which he catches by darting out his tongue at them as they fly past. The tongue, which is capable of being greatly elongated and darted out with great rapidity, is covered at its point with a glutinous saliva, to which the insects adhere, and they are thus drawn into the animal's mouth. It is true the Chameleon can exist without food for a very long period, and this fact, together with the almost invisible size of his actual food, and the rapidity with which he catches it, have probably given rise to the error we are alluding to. As to his changing colour, it is perfectly true that he does so, but neither of the explanations of the fact given above is the correct one. It is now pretty well established, thanks to the researches of Cuvier, that this change of colour is due to the action of the lungs (which are of an extraordinary size) upon the blood, when the animal is under the influence of fear or other passions. And in this he very much resembles man, who turns white, red, bluish, yellow, or other colours, under the influence of fear, anger, or disease. It is said, also, that the Chameleon is deaf. Another error. His sense of hearing is not acute, but still he hears.

The Earwig.—Who has not been terrified by the fatal properties attributed to this harmless little insect? The Earwig, it is said, will get into the human ear, and thence eat its way into the brain, thereby producing certain death. Now this feat is simply impossible, the peculiar construction of the ear, and the wax contained in it, effectually barring the entrance to the brain against all such unwelcome visitors.

THE GOAT.—There are people who imagine that male-oats have the property of absorbing miasmas, and, in this elief, they keep one or more of these animals in their stables. his is, perhaps, almost too absurd a belief to call for contradic-on. Suffice it to say, that instead of making a place healthy, ieir presence has quite a contrary effect, from the offensive lour given out by their bodies.

THE OSTRICH.—To have "a stomach like an ostrich," is a very ommon expression. As such we do not object to it, but what 'e do object to, is the belief that an ostrich can digest anything, ven stones, brass, or iron. This exaggerated opinion of the igestive powers of the ostrich has led to the belief that the tomach of this bird can retain the same property after its death; nd there have been physicians who have administered the strich's stomach to their patients in order to improve their igestion. Some have even gone so far as to search in the ntrails of the bird for a small white stone, which, hung about ie patient's neck by way of a talisman, was supposed to have ie same good effect upon the digestive organs. Time, however as now fully overcome these absurd ideas.

THE OX.—It is commonly said that if man rules as lord over nimals which are bigger and stronger than himself, it is on ecount of these animals' eyes being so formed that man appears o them much bigger than he is in reality. The ox is usually ited as an instance of this; and it is said that the eye of this aimal has such magnifying powers, that man appears of fearfully igantic proportions. The least reflection, however, would suffice o show that if the ox's eye do really magnify mankind, the same ye must, *in exactly the same proportion*, magnify every other ob-ect also, including the ox himself, and thus leave matters propor-ionally exactly as they were before. The superiority of man over he ox is not due to an illusion: its cause is real. Seek not to mea-ure it or weigh it; it is entirely a moral force. It is because is intelligence is greater that mankind is stronger than the ox.

SPIDERS.—Country people will tell you that spiders bring good uck to beast-houses; and that they purify the air. The fact is hat they do bring good fortune to the animals; but it is only by evouring the flies which torment them. To superstitious minds he sight of a spider announces money; but according to this ecount the poor ought to be the richest of mankind (if the con-radiction may be allowed), for they are certainly more liable to ee spiders in their miserable dwellings, than the richer classes are o meet with them in their carefully swept drawing-rooms. 'ormerly, important medical properties were attributed to the pider. It has now, however, lost all credit with the faculty. It ras considered to be a powerful poison; Lalande proved the con-rary by eating spiders. Again, its sting is no longer regarded as enomous—not even that of the Tarantula, which has completely ost its former power—no longer making any one either laugh or reep, and no longer being cured by dancing! There is another rror to be noticed in connexion with the spider; we allude to the elief which attributes to this insect a low noise like the ticking f a watch, which sounds in wainscots and paperhangings in the pring of the year. This was formerly called the death-watch, nd was looked upon as a fatal omen. It is, however, neither a upernatural agent nor a spider which makes this mysterious oise, but a species of small *scarabæus* which calls in this manner o its mate during the pairing season.

These are a few of the errors and prejudices which have grown p with and got incorporated into the science of natural history. Many others might be instanced, and doubtless many an injured nimal yet calls upon us to do him justice against the prejudices y which he is so great a sufferer. Many birds which are nercilessly slaughtered because they pick at a few fruits, or eat p some ears of corn, much more than compensate for their epredations by devouring insects whose ravages would be much 'orse than theirs. Amongst some minor errors we have not yet luded to, we may mention the belief in the power of a *toad* to pit poison upon any one who attacks it; this is, we need hardly ay, an error. Neither is it true that worms eat dirt. Several thers of this kind might be instanced. We have yet another lass of fallacies in natural history to deal with,—namely,

THE LONGEVITY ERRONEOUSLY ATTRIBUTED TO DIFFERENT ANI-MALS.—Hesiod tells us "the life of man terminates at the age of ninety-six; that of the crow lasts nine times the length of this, the raven lives three times as long as the crow, and the deer four times." Let us try the result of these simple problems in multi-plication. According to this calculation the crow should live eight hundred and sixty-four years, the raven two thousand five hundred and ninety-two, and the deer *three thousand four hundred and fifty-six!* Now as the world is said to be but six thousand years old, there might be, if we agree with Hesiod, actually in existence at the present moment a deer whose father's life dated back to creation itself. What a pity that deer are not endowed with the gift of speech! What wondrous things they would have to tell us! Hesiod, however, was a poet, and poets we all know are allowed a certain licence, though we must confess we have seldom known so very free a rendering of the multiplication table even by a poet. But let us see what the most celebrated writer upon natural history amongst the ancients says upon the subject. Pliny, though more modest in his assertions, still tells us that some deer were captured one hundred years after the death of Alexander, which deer had collars round their necks placed there by Alexander's own hand. The writers, however, upon whom reliance can be placed, including Buffon, assure us that the deer only lives to the age of from thirty-five to forty years, or about one-hundreth part of the period awarded to it by Hesiod. Ulysses' dog, famed in history for having recognised his master after twenty years absence, may be looked upon as a good instance of a long retention of faculties; but this is nothing to an Athenian mule, which died at the age of ninety; or to the horse a hundred years old, upon which Loup Asnard, Duke of Gascony rode to the court of Raoul, King of France, in the year 932, as related by the French historian, Mezeray. Dr. Hufeland, professor at the university of Jena, mentions eagles who had lived upwards of a hundred years in cages; and a falcon captured at the Cape of Good Hope, which must have been nearly two hundred years old, judging by a golden collar round its neck, which announced it to have been the property of His Majesty James, King of England, and bore the date 1610. Francis Willoughby, in his "Ornithology," published in London in 1676, mentions not only a goose eighty years old, which was still, to all appearance, quite a sprightly young gosling; but also a swan 300 years old.

Fish also have acquired quite as great fame for longevity as the inhabitants of the air. It is said, that in the year 1497, a pike was caught in the pond belonging to the Palace of Kaiserslautera, which pike had on a golden collar in the same manner as King James's falcon. On this collar was a Greek inscription, which signified, "I am the first fish put into this pond, placed here by the hands of the Emperor Frederick II., October 5, 1230." This venerable pike, which was thus 267 years of age, was dished up at Heidelberg upon the table of the Elector Philip. History is unfortunately silent as to how it ate. It measured 21 feet long, and weighed 390 pounds. One important particular must not be omitted. The collar worn by this pike was formed of elastic links, and well it might be to leave room for such a wondrous growth! However, it must not be supposed that these instances of alleged longevity are confined to the earlier ages of history, for, to descend to our own days, there are in the pond attached to the Palace of Fontainebleau, in Paris, some carp, which are quite as wonderful as our extensive friend the pike. Let us, however, not be misunderstood. It is not in weight or length that these poor modern specimens can hope to compete with "the first fish put into the pond," at Kaiserslautern. No, though some of them are good-sized fish, they sink into insignificance by the side of those 21 feet and those 390 pounds of solid pike. But in longevity our carp are actually the victors. It is very commonly stated, and not uncommonly believed, that the largest of these carp, the white ones, amongst others, were contemporary with Francis I., and in consequence must be at the present time upwards of three hundred years old! However sorry we might be to disappoint the lovers of the marvellous, truth compels us to state that inquiries instituted upon the spot have proved that the pond of Fontainebleau Palace was entirely destroyed after the departure of the Emperor Napo-leon from that palace, and therefore however patriarchal the carp then found in the pond may have been, those now there, even the most venerable of them, cannot date back their existence to any earlier period than the first year of the restoration.

THE LADIES' DEPARTMENT.

LADY'S CRAVAT OR NECK-TIE, IN APPLICATION.

MATERIALS.—Three-quarters of a yard of broad glacé, or sarsenet ribbon, blue, pink, or white; a few bugle pearls, some graduated round ditto; some rather stiff white net, and sewing silk which may either be white, or to match the ribbon.

This cravat is one of the very prettiest of Parisian novelties; it has the further merit of being very easily and rapidly worked. The engraving gives the full size of one end of the neck-tie; the two, of course, correspond; and a small piece of the ribbon, near the ends, must be also worked. The cravat is worn with a simple knot and ends, without bows.

The design is to be traced on thick writing-paper, from the engraving; then all the outlines must be pricked, at regular intervals, with a coarse needle. The ribbon is then to be marked at each end in the manner described already in our "Instructions for Embroidery" (see ILLUSTRATED EXHIBITOR, No. 2, Vol. I.) Tack the net underneath it, and work all the outlines in common chain-stitch, which is to be done rather closely, especially at the edges. Then, with fine lace-scissars, cut away the ribbon from all those parts where the net is seen in the engraving, and add the pearls.

Gray ribbon, with black net beads and bugles, worked with black silk, is extremely pretty for half-mourning. Water tints, such as rose, cerise, dark blue, are also worked with black. It is always advisable to choose a stiff net; that which is soft and silky is not strong enough to support the weight of the thick ribbon and beads.



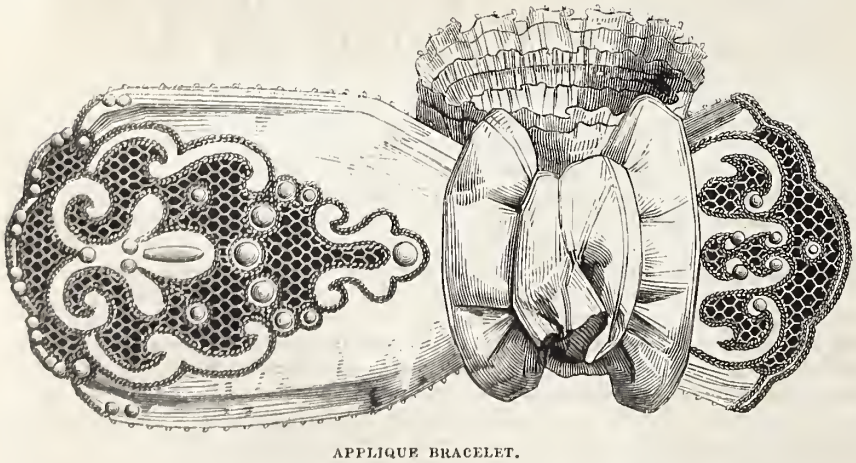
LADY'S CRAVAT.

APPLIQUE BRACELET.

(To be worn with the Neck-tie.)

MATERIALS.—Two yards of ribbon the width represented in the engraving, a small quantity of stiff white net, sewing silk either white or to match with the ribbon, and a few pearls of the size seen in the engraving.

White, light pink, blue, or salmon, are the colours most suitable for evening dress, and it may be well to remark, that by working a ribbon of any light hue with *white* silk, the effect is more delicate than if the sewing silk were of the tint of the ribbon. This bracelet is to be worked exactly like the cravat, with which it is to correspond, and to the instructions for which we refer the reader. It is made up thus: Cut off two pieces of ribbon, each about three-eighths of a yard long. Join each into a round, and line it with a bit of ribbon or sarsenet not quite so wide. Make runnings at a quarter of an inch from each edge, i which fasten some elastic. This slips over the hand. From th remainder of the ribbon cut two pieces for the knots of the hows then divide the remainder into halves, mark each end as seen i the engraving, work them, then make them up into a trimming c two hows and two ends (one of which is very short), add th knot, and fasten them to the bracelets.



APPLIQUE BRACELET.

ANTI-MACASSAR, IN CROCHET.

MATERIALS.—Four reels of crochet cotton, No. 8, 1 ditto, No 4, 4 oz. of turquoise blue beads.

The anti-macassar of which w give a representation in the en graving is intended to fit the to of a library chair. One half onl is seen. A similar piece of croch is to he made and sewed to it, th two forming a sort of bag, whic is slipped over the top of the chai It is a great improvement on th old-fasbioned anti-macassar, as it i not liahle to be displaced. A border is added to the front of it the pattern of which is made i beads (in the style of the bassine quilt, No. 8, Vol. I. of the ILLUS TRATED EXHIBITOR AND MAGA ZINE OF ART). This, from it weight, serves to keep the anti macassar from shifting, and i finished with a handsome fringe. Spotted muslin, or any simila material may be used for the back of the anti-macassar, instead o crochet, for those who would prefer saving themselves the troubl of working the second piece.

The upper part may be worked from the engraving, being done
n square crochet, for which we have already given full direc-
ions. Make a chain of 277 stitches. Do one row of d. c.;
hen work from the engraving, beginning with that row which is
n open square crochet, except the first and last squares, which
re close. When you come to the diminished part, begin the row
hus:—Miss 1, slip on the 2nd, s.c. on the 3rd, d.c. on the 4th.
Reverse the process at the end of the row. This diminishes the
ow one square at each end. Some few rows narrow the squares
t each end. In that case miss 4 at the beginning and end,
nstead of one. Work in the ends as you go on. This part of
he anti-macassar uses three reels of cotton. Thread the blue
eads on the 4th, No. 8 reel, and work the borders.

Begin by a row of s.c. on the *wrong* side, on the foundation
hain. All the subsequent rows are done on the same side.
Begin every row with two plain stitches, besides those in the
attern.

11th: × 10 plain, 3 beads, 7 plain, 1 bead, 1 plain, 1 bead, 2 plain ×.

12th: × 9 plain, 1 bead, 1 plain, 3 beads, 1 plain, 3 beads, 4 plain, 1 bead, 2 plain ×.

13th: × 8 plain, 1 bead, 3 plain, 3 beads, 3 plain, 1 bead, 2 plain, 2 beads, 2 plain ×.

14th: × 8 plain, 1 bead, 4 plain, 3 beads, 5 plain, 2 beads, 2 plain ×.

15th: × 8 plain, 1 bead, 3 plain, 1 bead, 1 plain, 3 beads, 3 plain, 3 beads, 2 plain ×.

16th: × 9 plain, 3 beads, 3 plain, 3 beads, 2 plain, 3 beads, 2 plain ×.

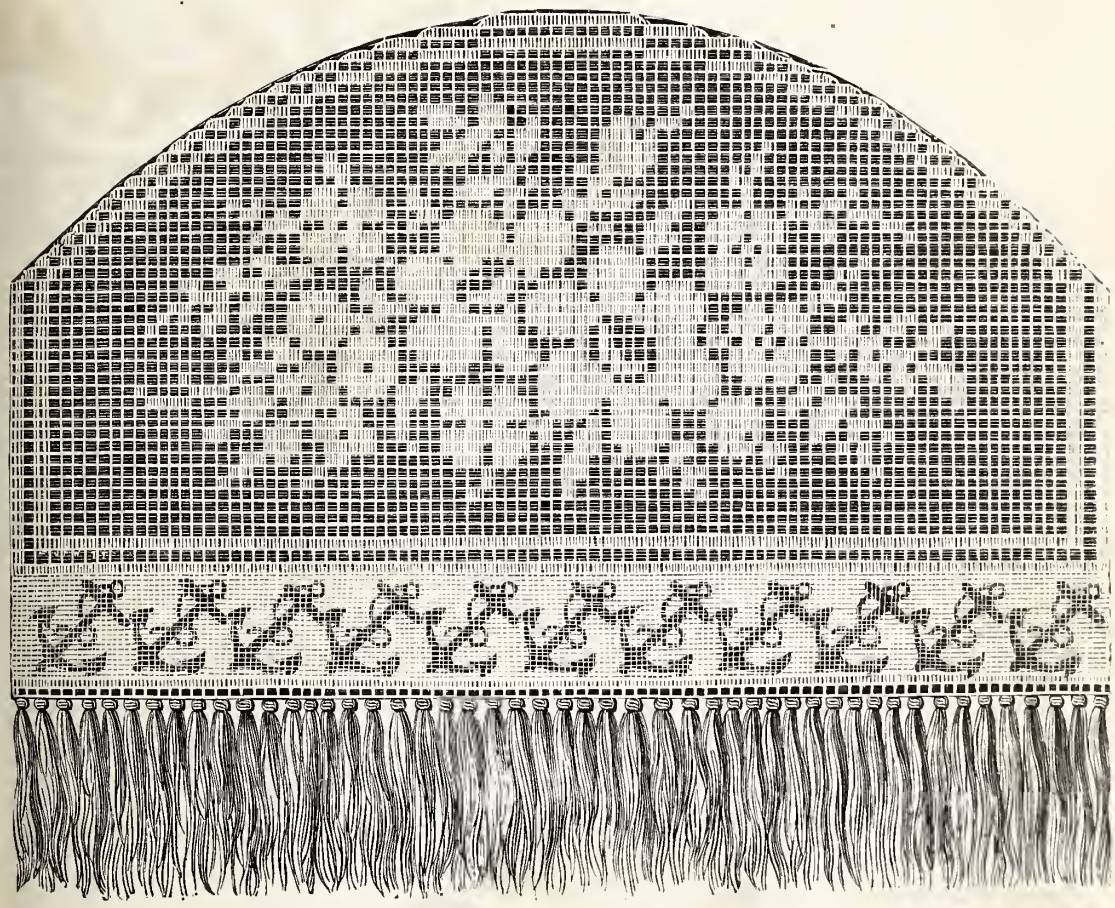
17th: × 16 plain, 6 beads, 3 plain ×.

18th: × 6 plain, 1 bead, 10 plain, 5 beads, 3 plain ×.

19th: × 6 plain, 3 beads, 8 plain, 5 beads, 3 plain ×.

20th: × 6 plain, 6 beads, 3 plain, 7 beads, 3 plain ×.

21st: × 6 plain, 5 beads, 2 plain, 10 beads, 2 plain ×.



ANTI-MACASSAR, IN CROCHET.

1st pattern row, × 2 plain, 2 beads, 5 plain, 2 beads, 14 ain × repeat to the end in this and every future row.

2nd row: × 1 plain, 1 bead, 2 plain, 3 beads, 1 plain, 3 beads, plain ×.

3rd: × 1 plain, 1 bead, 2 plain, 1 bead, 2 plain, 3 beads, 15 ain ×.

4th: × 2 plain, 7 beads, 1 plain, 1 bead, 14 plain ×.

5th: × 4 plain, 4 beads, 3 plain, 1 bead, 13 plain ×.

6th: × 4 plain, 4 beads, 4 plain, 1 bead, 12 plain ×.

7th: × 3 plain, 6 beads, 3 plain, 1 bead, 5 plain, 4 beads, 3 ain ×.

8th: × 2 plain, 3 beads, 2 plain, 3 beads, 2 plain, 1 bead, 6 plain, beads, 1 plain ×.

9th: × 1 plain, 3 beads, 4 plain, 3 beads, 1 plain, 1 bead, 7 ain, 5 beads ×.

10th: × 1 plain, 2 beads, 6 plain, 3 beads, 8 plain, 3 beads, plain ×.

22nd: × 7 plain, 10 beads, 4 plain, 2 beads, 2 plain ×.

23rd: × 8 plain, 2 beads, 15 plain ×.

Do one row of d.c. Then one of open square crochet, which must be worked on the right side.

For the fringe: Take a card five inches wide, and wind the No. 4 cotton round it 12 times. Cut the ends at one edge of the card. Slip the heads of all these loops through one of the open squares of the last row, drawing them out on the wrong side sufficiently to pass all the ends through them. Draw the ends tightly, and one knot of fringe is made.

Miss one open square, and repeat on the next, ending and beginning the row with a knot of the fringe.

If the back of the antimacassar is also made in crochet, the join may be concealed by a narrow crochet edging, sewed or worked on.

On no account should *transparent* glass beads be used with cotton, for crochet.

THE CATACOMBS.

The catacombs, or underground vaults and alleys of Rome, had their origin in the days of heathenism. They are the mines or quarries from which were dug vast supplies of that kind of earth or sand, called puzzolana, which is generally used in erecting the Roman edifices. Quarrying for this in the district termed Campagna, the inhabitants carried their shafts sometimes to a considerable depth; and on striking a vein of the earth they sought, they followed its windings, now upwards, now downwards, by long flights of steps, and by winding galleries. From the main shafts, intersecting branches run in every direction. These passages range from three to six feet in width, and from seven to ten in height. They are very rough and rugged; they are cold, damp, and dark; they extend for miles in different directions. Occasionally the soil gives way and leaves openings into them, down which travellers fall, and lives are lost. Tales are told of horrible scenes in the case of persons who heedlessly, and without competent guides, have entered these subterranean regions.

These quarries having ceased to be worked, were used by pagans of the humbler classes as a burial-place. For the same purpose were they also used by the early Christians. Hence heathen and Christian ashes lay near each other, and it is difficult to discriminate between the two.

The catacombs were the hiding-places of the early Christians before they became their tombs. Thither the disciples fled from the blood-stained hand of persecution. Thousands leaving behind all that was dear to them in life, found there their only refuge. In crowds did they gather in these dark caverns. They flitted through them like spectres, startling and frightening each other; now they shrank in terror as from an approaching enemy; now with joy and gratitude they unexpectedly met some dear relation or some faithful friend.

But Christians could not fail to offer their adorations to their common Father, and only hope. Hence the catacombs became the first Christian churches. There at least they could worship their God without instant peril. To those secret and comparatively safe chapels, other disciples who had not yet been forced to flee, repaired from time to time, and in the mysterious recesses of the earth, when life and death were sundered by only shadowy and evanescent lines, joined their supplications with their proscribed brethren, and strengthened their souls for the fiery trial." Thence, too, at times would those brethren steal forth on errands of mercy—to aid some fellow-believer in his flight, to encourage the timid and confirm the bold, to gather up and bury the lacerated members of a martyr who had been torn to pieces by the wild beasts of the Colosseum.

Thus the catacombs became Christian graves. Honoured by the ashes of men and women who had proved "faithful unto death," they were naturally desired as a revered resting-place by ordinary members of the Christian church. Before this result ensued, however, the Catacombs had witnessed scenes of massacre. Boiling with rage the Pagans pursued the feeble disciples in their flight, and entering with them into the dark caverns, overtook and slew them. The corpses received due attention from the pious hands of those whose dwelling was in this "valley of the shadow of death." A cavity was cut in the side of the wall, and there the mangled body was laid. At the feet a rough stone was set up. And on the stone was rudely carved some Christian symbol, or two or three expressive words. The symbol was a palm-branch—the token of the victory which the martyr had achieved; or a cross, the universal emblem of the Christian's faith and hope. The words were of the simplest kind—"A grieving daughter to her beloved father;" "She lives for ever;" "Rest;" "Peace in Christ."

This system of burial continued for centuries; with the increase of Christians in Rome the tombs multiplied, until all through the Catacombs the walls of the passages on both sides were full of these graves, arranged sometimes two or three deep, so that the visitor now walking through these vaults, walks between long galleries of the dead, who sleep on either hand in numbers beyond computation.

For many centuries the memory of the Catacombs was lost. At last, in a degenerate and corrupt age, superstition laid its unhallowed hand on these sacred remains—the appropriate representations of a period of simple faith and self-forgetful love. The Catacombs were invaded by innumerable bands of monks and friars, collecting from their graves the bones of the long-buried dead. They dragged the mouldering relics of mortality into the upper world, hawked them from city to city, and from country to country, and using them as articles of commerce, carried on therein a contemptible and degrading traffic. Every grave was rifled, every skeleton was rent asunder, every bone was pounded in order to multiply splinters; and when the grave of some eminent martyr was said to be discovered, the head was severed and sent to one country, and the leg was severed and sent to another country; an arm was forwarded to this monastery, and a thigh to that; this shrine was enriched with a tooth, and that church was made specially holy by a shred of gravecloth. The supply augmented the demand. Cupidity, as is its nature, was unscrupulous. For a favourite martyr, there was no difficulty in furnishing more heads than one, so that even at the present day some saints have several different heads and arms in different places. The Catacombs, as a mine of bones, proved incomparably more productive than if they had been a mine of silver.

But, sickening as these things are, as an indecency and an outrage of the dead, as revolting to every gentle feeling, and as shameful profanation of the Christian religion; yet the abuse could not alter the facts of history, nor strip the Catacombs of their touching interest and real importance; there they remain, those primitive Christian graves, those simple monuments of faith and love, those imperishable proofs of the devotion of the early disciples, and on and around them remain, too, indications of primitive customs and primitive opinions, together with associations that are for ever venerable and impressive.

THE VARIETY AND EXTENT OF VEGETABLE LIFE.

If we review every region of the globe, from the scorching sands of the equator to the icy realms of the poles, or from the lofty mountain summits to the dark abysses of the deep; if we penetrate into the shades of the forest, or into the caverns and secret recesses of the earth; nay, if we take up the minutest portion of stagnant water, we still meet with life in some new and unexpected form, yet ever adapted to the circumstances of its situation. The vegetable world is no less prolific in wonders than the animal. Here, also, we are lost in admiration at the never-ending variety of forms successively displayed to view in the innumerable species which compose this kingdom of nature, and let the energy of that vegetative power which, amidst such great differences of situation, sustains the modified life of each individual plant, and which continues its species in endless perpetuity. It is well known that in all places where vegetation has been established the germs are so intermingled with the soil, that whenever the earth is turned up, even from considerable depths, and exposed to the air, plants are soon observed to spring, as if they had been recently sown, in consequence of the germination of seeds which had remained latent and inactive during the lapse of perhaps many centuries.

Islands formed by coral reefs, which have risen above the level of the sea, become, in a short time covered with verdure. From the materials of the most steril rock, and even from the yet recent cinders and lava of the volcano, nature prepares the way for vegetable existence. The slighest crevice or inequality is sufficient to arrest the invisible germs that are always floating in the air, and affords the means of sustenance to diminutive races of lichens and mosses. These soon overspread the surface, and are followed, in the course of a few years, by successive tribes of plants of gradually increasing size and strength; till at length the island, or other favoured spot, is converted into a natural and luxuriant garden, of which the productions, rising from grasses to shrubs and trees, present all the varieties of the fertile meadow, the tangled thicket, and the widely-spread forest. Even in the desert plains of the torrid zone, the eye of the traveller is often refreshed by the appearance of a few hardy

plants, which find sufficient materials for their growth in these arid regions; and in the realms of perpetual snow which surround the poles, the navigator is occasionally startled at the prospect of fields of a scarlet hue, the result of a wide expanse of microscopic vegetation.

BUILDINGS FOR THE INDIGENT.

That the poor are never to cease out of the land, and that their richer brethren are to care for them, and to supply their wants, are, manifestly, the ordinations of a wise and gracious Providence. It is not for those who have houses to shelter them, and clothes to keep them warm; who are nourished by wholesome food, and who, reposing on downy pillows, enjoy sweet slumbers; it is not, we say, for this class to forget those whom poverty has deprived of a shelter; who have no home, no clothing to defend their limbs—no food to recruit their strength—no friend to cheer their drooping spirits, to sustain them under the attacks of disease, or the infirmities of age, or to smooth their passage to "the house appointed for all living."

Experience, however, has proved, that if this duty of caring for the necessitous, and supplying their wants, be left to individuals, their bounty may flow in an uncertain and uneven current, and many cases of deep distress may remain unprovided for. Prejudices and prepossessions, too, may cause some cases to be wholly unheeded. In all well-ordered governments, therefore, provision is made for the poor at the public expense, and buildings are erected in which they may be collected together, and placed under certain regulations, differing according to the constitutions and customs of the countries in which the provision is made. In this country, "poor-houses" and "workhouses" have long existed, and within the last fifteen or sixteen years nearly the whole kingdom has been formed into "Unions,"—that is, several parishes, instead of having, as formerly, each its own distinct and separate parish "workhouse," have formed themselves into one Union, having one large building, in which the poor of the several parishes are collected together, under the care of one master and mistress, or general superintendent. The buildings erected for this purpose are now known by the name of Unions.

It is not our present intention to inquire into the merits of these establishments; nor to decide whether the provisions thus made by our Government, to supply the lack of service on the part of individuals, are commensurate with the necessities of the poor and destitute. Gentlemen who are supposed to be competent judges, have made diligent inquiry into these matters, and have assured the public, that the present poor-law system, though it doubtless has its short-comings and imperfections, is a vast improvement upon the system which it superseded; that while it has in no way checked the current of private charity, it has extended protection and support to all the really necessitous; that it has increased the comforts and improved the general state of the aged and infirm poor; and that it is calculated to raise and sustain the condition of the independent labourer by refusing to grant any premium on idleness or dependence. But it is with the architectural character of these "Unions" that we have chiefly to do.

One thing every observer must admit,—namely, that the buildings called "Unions" are a vast improvement upon the "poor-houses" and "workhouses" of former days, both in point of architectural beauty and sanitary provision. It was for many years our reproach, that the receptacles provided for our hale and wealthy poor were in close, confined localities, rarely visited with the pure air of heaven, and surrounded by circumstances the most injurious to health and comfort. Our hospitals and asylums—our almshouses and schools—in which thousands upon thousands were housed, clothed, fed, taught, tended, and in every way rendered comfortable, could boast of their architectural beauties, vying, some of them, with the palaces of nobles, and commanding the admiration of foreign visitors; but no such care and thought were bestowed upon that large class of individuals who have the misfortune to be known as our "Parish Poor."

The Poor-law Amendment Act has given rise, as we have said, to the erection of many union workhouses throughout the kingdom. These are, of necessity, extensive buildings, and arranged, in the majority of cases, for the reception of from five hundred to a thousand persons. These comprise all classes of individuals, the aged and the young—the infirm and the able-bodied—the unfortunate and the profligate—married and single—children with parents, and orphans without them—persons educated and uneducated—well-disposed and ill-disposed. A proper classification of such a congregation is obviously of great moment, and this involves the necessity for skill and ingenuity in the construction of the buildings erected to receive them. Whether from want of taste, or from ill-judged economy, we know not, but certainly these considerations have not always had due weight, even in the erection of our modern "Unions."

It might well be supposed that the City of London, the Emporium of Commerce, would not be behind the age in a matter of this kind. The City of London Union, comprising within itself ninety-seven parishes and one precinct, with a board of one hundred guardians, might reasonably be expected to furnish a model Union House. It has done so; and a view of the exterior of the City of London Union workhouse we now present to our readers.

The new workhouse is situated on the road leading from Stratford-le-Bow to London, at a short distance from Bow, and adjoining the Merchant Seamen's Asylum. It is, as will be seen, in the Italian style of architecture. It commands a frontage of 275 feet, with the sides running parallel upwards of 720 feet in length, to a broad footway which divides it from the Tower Hamlet's Cemetery. The building is of the plan of the letter  the chapel, A, branching out from the cross line.

In the rear are the stores, scullery, kitchen, dining-hall, airing courts, workshops, &c.; terminated by the infirmary. The left front wing is appropriated to the married couples; the right wing to mothers with infants. The main front contains day rooms for the infirm men and infirm women, with airing corridors and a covered arcade in front. The back wings contain three distinct subdivided classes of each sex, with a separate staircase for each, thus affording every facility for a classification not to be equalled in any institution in the kingdom. The corridors have a direct light from the yards, and like the staircases are for the especial use of one class only, none but the master or matron having occasion to pass through them. These corridors afford excellent airing places and day rooms for such of the weak and infirm inmates as cannot go up and down stairs. Persons who pass along the Bow-road must be struck with the beauty and extent of this range of buildings, so different from that usually presented by edifices erected or appropriated to poor-law purposes.

The exterior, however imposing as it is, yields in interest to the internal arrangements, particularly in all those appliances which relate to the health, comfort, and convenience of the aged and infirm persons who are likely to form the larger portion of the inmates.

The site is four-and-a-half acres in extent, and is as completely occupied with buildings as good taste and regard for sanitary arrangements would permit. One-third of the space is devoted to what may be called the main buildings, and the other two-thirds are devoted to kitchen, dining-room, washhouses, laundry, workshops, infirmary, and fever hospital.

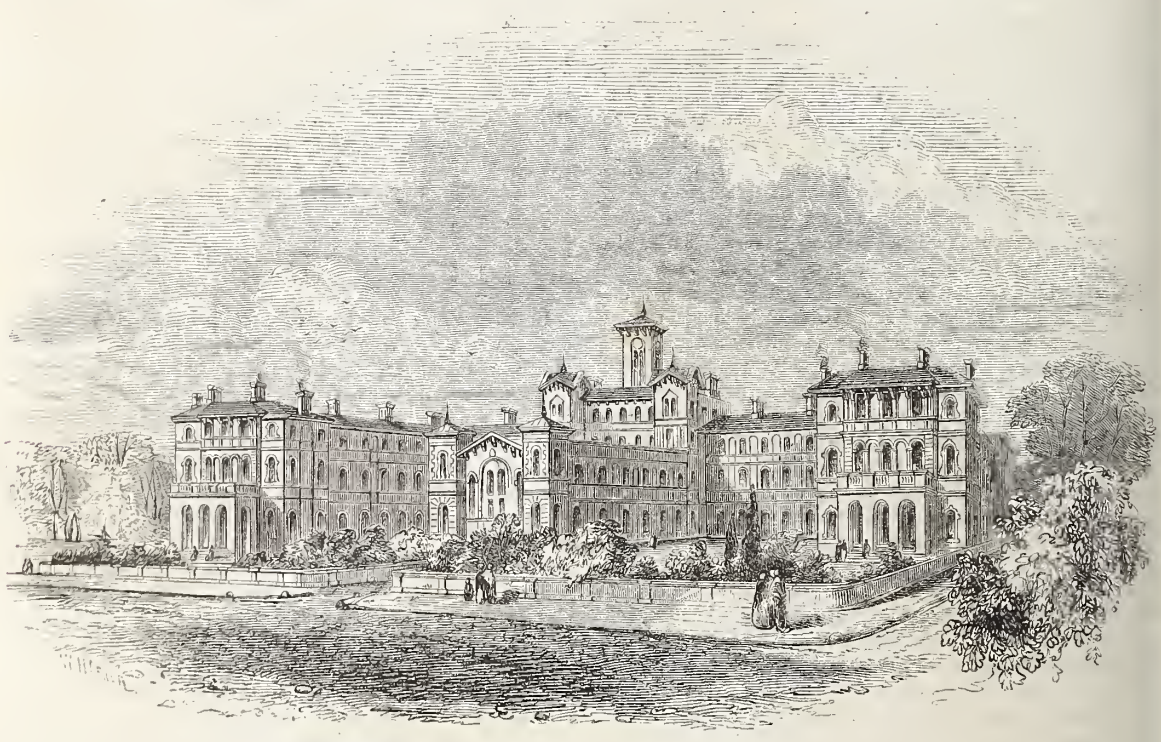
The ground was first broken on the 11th of April, 1848. The first brick was laid on the 16th of May, and on the 14th of June the first stone was laid with much ceremony by Mr. Alderman Gibbs. The architect is Mr. Richard Tress, of Little St. Thomas Apostle. Not an accident occurred from the beginning the end.

The front building stands thirty-five feet back from the Bow-road and forms a centre, and two wings; the centre consists of two high stories, with a campanile rising sixty feet from the ground; it is built of brick with Caen stone dressings; it contains a spacious board-room, committee-rooms, and clerks' offices; the two wings are fitted up as

receiving-wards, with baths, closets, and washhouse. Behind is the chapel before mentioned, which divides the foreground into two quadrangles, each with an open arcade covered with rough plate-glass. The chapel is neatly, if not elegantly, fitted up, having a stained-glass window, presented by Mr. Vigers, one of the guardians, the roof is open, with exposed timbers stained and varnished; there are galleries for the aged and infirm, placed on a level with their dormitories, thus enabling them to take their seats with the least possible trouble; the accommodation is for seven hundred persons. The design is characterised by extreme simplicity, but at the same time there is an approach to massiveness in the details, which is not by any means suggestive of the idea that it is a place of worship for paupers.

Immediately behind the chapel rises the principal campanile, it is one hundred feet in height with two side towers; the buildings which contain accommodation for the inmates and officers branch out from each side of the campanile, and then turn off at right angles, forming the sides of the quadrangle. Externally these buildings are of brick and cement dressings, internally every thing is plain and substantial, but the arrangements and appliances are of the most effective and convenient kind. Heated water a communication by bells under ground from the nurse's room of the Infirmary to the nurse's room of the Fever Hospital, and the same with the imbecile wards, so that the nurses in either department may get additional assistance if required. Throughout the extensive range, the passages are lighted with gas, and the burners are so arranged as to light at the same time the dormitories and day rooms.

In the rear of the premises is a spacious dining hall, where the members of both sexes meet at meal-time. This room is of noble proportions, and is capable of accommodating upwards of 800 or 900 persons. To the back are a set of buildings appropriated to the kitchens, washhouse with hot and cold water, and steam, large boiler, rinsing-tubs, and drying-machine, drying-closets, mangles, drying-yards, and workshops, and engines for generating steam for cooking and heating purposes. A well furnishes an exhaustless supply of excellent water raised to the highest part of the building by means of a pump worked by sixteen men, and this pump-work is the main labour test. The Infirmary stands detached, as well as the Fever Hospital, the distance between them being considerable; in both the accommodation is spacious, and the arrangements of every kind seem to leave nothing to be desired.



CITY UNION, BOW ROAD. FROM THE DESIGNS OF RICHARD TRESS, ESQ., ARCHITECT.

supplies warmth, light is admitted without stint, hot and cold water for personal use is supplied in abundance, and the ventilation seems to be perfect. The passages are of lava, rendered fireproof by being placed on brick arches; as an additional precaution there are fire-cocks in each story. There are fifteen rooms, well-lighted, airy, fitted with gas, and with a bell in case of accident, set apart for such aged married couples as are entitled, under the Borthwick clause of the amended poor-law, to live together.

The plan which has been devised for communicating to the nurses or matrons the intelligence of any sudden illness in the night-time, is well deserving of special mention.

A piece of simple machinery called a tell-tale, has been constructed in the wall, and is connected with a bell, which is fixed in, or in close contiguity with, the apartment of the nearest nurse, the pulling of a wire, which causes this bell to ring, has the effect of lifting from its place a piece of iron belonging to the machinery fixed in the wall, and which is visible on the wall outside, the result points out to the attendant who answers the bell, the particular chamber in which her assistance is required. There is also

The infirmary is adapted to receive 280 patients, and in this compartment there is every convenience which invalids are likely to require. There are dormitories for aged couples, apartments for imbeciles, well-guarded courtyards for refractory inmates, workrooms for able-bodied men, washhouses, baths, every convenience for washing and drying clothes, kitchens, covered passages for exercise in bad weather, and grassplots for the same purpose during fine weather.

The City of London Union is evidently a magnificent structure at once elegant and substantial. The entrance faces the big road, and the general aspect impresses the beholder with admiration, while an examination of the interior is suggestive of the magnitude and value of our modern improvements.

All the hints which have been thrown out at public meetings during the prevalence of disease, and every valuable suggestion which has been made on the subject of ventilation, appear to have been most studiously followed by the architect; and if the Boards of Guardians in the various districts should follow the example here set before them, "the dwellings of the poor" will no longer present to the philanthropist any ground of complaint.

SIR SAMUEL ROMILLY.

The life of an English reformer, whether in church or state, does not present many salient points of interest. From first to last his labours are but a repetition of the same efforts, and a reiteration of the same arguments, varied only in the illustrations which are drawn to support them. He can recount no hair-breadth escapes, no deadly perils by land or sea, no fierce struggles in the breach; can tell of no cold bivouacs on the moist ground after a hard-fought field. The soldier's exploits are all performed in the heat of excitement, and under the influence of a deadly thirst for destruction, which in man, as well as in wild beasts, grows and strengthens the oftener it is gratified. To win victories in the cause of humanity and freedom is a slower and applause are reserved for those who have achieved military rather than civil renown. We have fewer pensions and statues and honours to our legal and moral reformers than for our great naval and military captains.

One would naturally expect that the sternest opponents of barbaric abuses would be found in the ranks of those whose special province it is to administer spiritual consolation to toil-worn and misguided men; that they who denounce the abominations of the human heart, would be the first to save us from the consequences, in this life at least, of our folly and wickedness. But, strange to say, nearly everything that has been done in modern times to ameliorate the condition of the people, to beat



SIR SAMUEL ROMILLY. ENGRAVED BY MASON.

more painful process. It is not mere physical courage which is here required, nor yet the well-ordered intellect and astuteness which are necessary to marshal and array the elements of destruction; but zeal which ingratitude cannot turn cold, hope which obloquy and disappointment cannot abate, moral bravery which can face sarcasm and calumny without shrinking, and above and beyond all these, a child-like faith in the final triumph of what is true and just. The tongues of men shower no praises upon those who save and elevate them; their reward on this earth is, too often, the whispered approval of conscience only. In every country in the world, but perhaps in a greater degree in England than in any other, state rewards and public down abuses, to make justice cheap and speedy, to prevent crime, not by the savage ferocity, but by the certainty of punishment; to diffuse the blessings of education and good government, to give the world higher ideas of its destinies, to plant in scared and dried-up hearts the germs of self-respect and self-elevation, higher resolves and loftier aspirations,—has been the work of laymen, and not unfrequently of that much-abused class, the lawyers, whose league with his Satanic majesty is still a fondly-cherished household belief amongst many of the uneducated classes. Corporate bodies, and men under a system which entails perfect obedience to superiors, seldom travel out of the strict sphere of their duties, and are ever opposed to change of whatever kind.

By a wise and necessary attention to the removal of secular abuses, the man of the world has often effected changes without which the churchman might have laboured on for ever in vain. It is to these faithful men that England owes most of her greatness and happiness, who have not hesitated to stand boldly forward for the right, when the world and its wisdom and wealth were against them. To Hampden and Falkland she is indebted for her constitutional freedom; to Wilberforce, for the proud boast that, in her eyes, no colour is incompatible with freedom; and to Romilly, Brougham, and Mackintosh for the greatest and best of modern reforms—that of her criminal code.

All the writers on English law, from Glanvil down to Blackstone, have gloried in the assertion that in no other judicial code in the world, was the same jealous care evinced for the safety of the life and limbs and property of the subject. Never was there an assertion so badly supported by facts. Injury to property has, to be sure, been always looked upon by English legislators with a bloodshot savage eye; but, in the very means which they employed for its protection, they have always shown their utter disregard for the value of human life. All the earlier penal enactments on the statute-book, seem to have been passed in a fit of drunken fury, so savage is their ferocity, and so small is the amount of tact, knowledge, or discrimination they display. The idea of proportioning the punishment to the magnitude of the crime seems never to have been thought of. All distinctions of greater or less evil in consequence, greater or less amount of temptation, difference in popular notions of criminality, were lost sight of in this bloody code. Englishmen were hanged if, being in a riotous assemblage, they did not disperse at the command of the magistrate; if they transported wool or sheep twice out of the kingdom; if they smuggled; if they fraudently became bankrupt, and, curiously enough, if they got married anywhere but in the "church," or without a licence of the Archbishop of Canterbury—an odd way, one would think, of inculcating the precepts of Christianity. They were liable to hanging also, for making false entries in a marriage register, and in order to restrain the roving propensities of the juvenile population, they were hanged if they wandered as gipsies for thirty days. We are not aware whether one day less would save the prisoner's life; but, as the lawyers were always fond of adhering to the letter, we may presume that restless individuals might safely give way to their inclination for a nomade life for twenty-nine days without fear of the halter. Hanging was the punishment also for stealing from the person property above the value of twelve pence; for burglary in the night; for stealing from a dwelling-house above five shillings, or a vessel above forty shillings; stealing fish, hares, or conies, otherwise rabbits; robbing on the highway to the value of one farthing; forgery of every kind; tearing down fences, opening fishponds, destroying trees in parks and gardens, maiming cattle, &c. &c. There were in all about one hundred and fifty offences for which death was the punishment.

Then it was not enough to hang the criminal by the neck merely until he was dead; he might at the discretion of the judge be dragged to the place of execution at the heels of horses; have his reeking entrails torn out while yet alive, or be burnt to death; or he might be beheaded, quartered, and have the parts disposed of as his majesty should think fit. The royal pleasure in this matter generally was that they should be nailed up in conspicuous places as a terror to evil-doers. The gates of towers were frequently adorned in this way, and many a ghastly trophy elevated above Temple Bar, has proclaimed to the Londoners that the hangman was abroad. The bodies were very frequently left suspended on the gibbet, fastened by chains, or as it was called, "hung in chains," to prevent them receiving the rights of sepulture from the pious care of friends or relatives, and that they might hang as a prey to the crows and ravens, and brutalising agents to the surrounding population. Sometimes, however, the law was merciful. The unfortunate wretch who fell into its clutches was not killed outright, his hands only were cut off, or his ears, or his nose slit, or a brand put on his cheek.

Our readers will doubtless imagine that, with these terrible penalties hanging over the head of the accused, his trial at least was conducted with scrupulous care, that every tittle of the evidence was carefully weighed and sifted by the cross-examination of subtle pleaders, and that all the resources of professiona dexterity were brought to bear to save the unhappy culprit fro the fearful consequences of his crime or folly. Nothing of th kind. Counsel was never allowed to the prisoner even in cas of high treason, when all the power of the crown was brought t crush him, until the reign of William III.; and, down to th reign of William IV., his counsel was not allowed in any case t do more than to state points of law to the court. A poor an illiterate man, accused of a crime which imperilled his life, an threatened to leave to his children, and his children's children, heritage of shame, broken down by imprisonment and anxiet strong in nothing but the impulses of his own rude heart, w brought into court, confused by the involved periods of a po derous indictment, called upon to plead with fear and trembli and then cast into the arena for the learned kennel to snarl a hite over him. Unblushing informers might mount the tabl and tell a well-varnished tale, so well linked and complete, th none but the practised eye of a trained lawyer could detect a fla in it, and having told it with the aid of crown prosecutor glosses, the poor prisoner was told to cross-examine him. T unhappy wretch might know well that the story was false, th though appearances were against him, the conclusions sought be drawn were not warranted by the facts, but where could h in that hour of mortal agony, with a grave in an unanointed s open before him, find words to parry the charge, or subtlety a astuteness to confound the perjurer; and when the counsel f the crown, learned, able, and energetic, disciplined in all t manœuvres of the forum, and all the quirks and quibbles of intricate system of jurisprudence, brought all the arts of rheto to bear upon the jury, to bring about a conviction,—what mockery it was to tell the accused in the dock that he had t right of reply if he pleased! How many thousands were remov with vain protestations of innocence on their lips to appear t following Monday on the scaffold, with a crowd of unhap wretches like themselves, to dangle in the throes of death amid the jeers and execrations of a filthy crowd. This was in Chri tian England, Christian *par excellence;* and while this is going we called the Grand Turk a savage tyrant, the Czar a relentle despot, and spoke of Central Africa as full of the habitations cruelty. Assuredly we were no better ourselves. The on difference, that when we did great wrongs we did them openl with noise, bustle, and great talk; in other countries, they we done with expedition, in secrecy, silence, and without formality

Sir Samuel Romilly was the son of a French protestant refuge who had been driven from his native country in early youth, the revocation of the edict of Nantes. He married a French la after coming to reside in London. Of a large family, three childr only survived; and of these Samuel was the youngest. He w brought up in infancy, in consequence of his mother's ill healt by a pious and well-educated nurse, herself a religious refuge and it is to her teaching that he douhtless owed the ardour affection and sentimental melancholy which marked his dispos tion through life. The hatred of unnecessary cruelty for whi he was afterwards so remarkable, had its origin in his cradl "A dreadful impression," says he, "was made upon me b relations of murders and acts of cruelty. The prints which found in the lives of the martyrs and the Newgate calendar ha cost me many sleepless nights; my dreams, too, were disturb by the hideous images which haunted my imagination by da I thought myself present at executions, murders, and scenes blood; and I have often lain in bed agitated by my terrors, a equally afraid of remaining awake in the dark, or falling asle to encounter the horrors of my dreams. Often have I in n evening prayers to God besought him, with the utmost fervour, suffer me to pass the night undisturbed by horrid dreams."

He was sent to school, with his brother Thomas, to a brut tyrant named Flacer, who made up for his want of knowled and skill by a system of savage severity. On leaving this, aft having acquired a common English education, it was his father intention to place him as an apprentice in the counting-house of relative, a wealthy merchant in the city. The unexpected deat of the latter, however, prevented this scheme being carried in effect. His occupations for the next two or three years of h life had no fixed character; he assisted in keeping his father

accounts, who was carrying on business as a jeweller, but all his leisure moments were devoted to the study of Greek and Latin, in which languages he at length acquired a tolerable proficiency. While yet uncertain as to how his future course might be shaped, a distant relative bequeathed to the family between £14,000 and £15,000. Upon receiving so large an accession to his fortune, his father took a house in Marylebone. The family circle was at this time increased by the addition of two lively female cousins, who, upon the death of their other relatives, came to reside with their uncle. Sir Samuel, in his account of his early life, draws a graphic and pleasing picture of the happy evenings which they all now spent together, but his dislike to his father's business daily increased. His friends accordingly conceived the idea of placing him in the office of the Six Clerks in Chancery. It would have required, however, a sum of nearly £2,000 to obtain the situation for him. Being unwilling to inconvenience his father by the withdrawal of so large a sum from the common stock, he therefore abandoned the plan, and determined upon going to the bar. He accordingly entered himself, in the year 1778, when just twenty-one years of age, as a student in Gray's Inn. He was called to the bar in due course, and soon after took chambers in the Inn.

His sister Catherine was married to a Swiss protestant clergyman, named Roget. They were soon after their marriage obliged to go and live in Geneva, for the benefit of Roget's health. There Sir Samuel paid them a visit. In 1784 he translated a pamphlet of Mirabeau, whose warmest friendship, as well as Dumont, and that of other distinguished foreigners, he afterwards enjoyed, as their correspondence with him sufficiently proves. Lord Lansdowne offered him a seat in Parliament, but this, and other similar offers he declined, from an aversion to enter the House otherwise than as an independent or popularly-elected member. A number of years elapsed ere he rose at the bar, from a no less honourable cause. He never concealed his early formed wishes for a reform in civil and criminal law,—he saw the huge wrong-doings of the systems at work, and he never shrank from denouncing an evil, though it cost him the patronage of many a wealthy attorney. But ultimately his natural abilities overcame every obstacle—he became well known and well liked, a thoroughly successful man. About the year 1798, being then evidently in the way of abundant wealth as well as the highest professional honours, he married Miss Gerbett, of Knill Court, Herefordshire.

His acquaintance with this lady he has himself described, and we cannot forbear giving it to the reader,—it is so un-parchment like,—it has nothing to do with red tape,—learned silk and forensic horsehair are quite lost sight of in the charming bit of gossip. He says: "Some miles from Bowood is the form of a white horse, grotesquely cut out upon the downs, and forming a landmark to a wide extent of country. To that object it is that I owe all the real happiness of my life. In the year 1796 I made a visit to Bowood. My dear Annie, who had been staying there some weeks with her father and her sisters, was about to leave it. The day fixed for their departure was the eve of that on which I arrived; and, if nothing had occurred to disappoint their purpose, I never should have seen her. But it happened that on the preceding day she was one of an equestrian party which was made to visit this curious object, she overheated herself by her ride, a violent cold and pain in her face was the consequence. Her father found it indispensably necessary to defer his journey for several days, and in the mean time I arrived. I saw in her the most beautiful and accomplished creature that ever blessed the sight and understanding of man. A most intelligent mind and uncommonly correct judgment, a lively imagination, a cheerful disposition, a noble and generous way of thinking, an elevation and heroism of character, a warmth and tenderness of affection, such as are rarely found even in her sex, were among her extraordinary endowments. I was captivated alike by the beauties of her person and the charms of her mind. A mutual attachment was formed between us, which, at the end of little more than a year, was consecrated by marriage."

In 1806, when the Whigs came into power, Romilly was appointed solicitor-general, entered parliament for Queensborough, and became *Sir* Samuel. He was then launched upon the sea of public life, and amidst all its storms and tempests he ever maintained the esteem of all good men. Session after session he laboured for the reform of the criminal and civil laws; his voice was ever raised in the advocacy of humanity, his interest was ever engaged on the side of truth and mercy. Happy in his own domestic circle—happy in the affection of a loving wife and children—happy in the friendship of the good and great—he did not forget the unhappy. His sunshine never made him forget that others sat in darkness. Though no great triumph was achieved in his lifetime, though he did not see the result of his unwearied labour, though but little was accomplished for the reform of that which stood so much in need of reform—the criminal and civil codes, he did not work in vain.

In 1818 his beloved wife fell grievously ill, and the brief diary of this period shows how inseparably his existence was intwined with hers. On the 9th of October she had become slightly better, and the diary then records that the writer "slept for the first time after many sleepless nights." She relapsed, and died on the 29th of October; and three days afterwards Sir Samuel's mind became deranged—the shock was too much—the blow too heavy, his finely fibred brain gave way—and the man whose life had been spent in the blessed work of humanity terminated that life by his own hand, leaving a reputation, both as respects public or private character, excelled by that of no man among his contemporaries.

But the effect of his life did not die. That stern old criminal law, that like a bungling and unskilful surgeon amputated every diseased member—that hanged up nineteen men to grace the *début* of the new drop at Newgate—that taught its lessons of morality by the exhibition of violent death—gave way. One after another the blood laws have been repealed; and the day will soon be here when only as a thing of the past, shall that fearfully ominous abbreviation, which too often even now is found upon our sessional returns, be recognised at all; when *Sus. per. col.* shall only be a bygone barbarism.

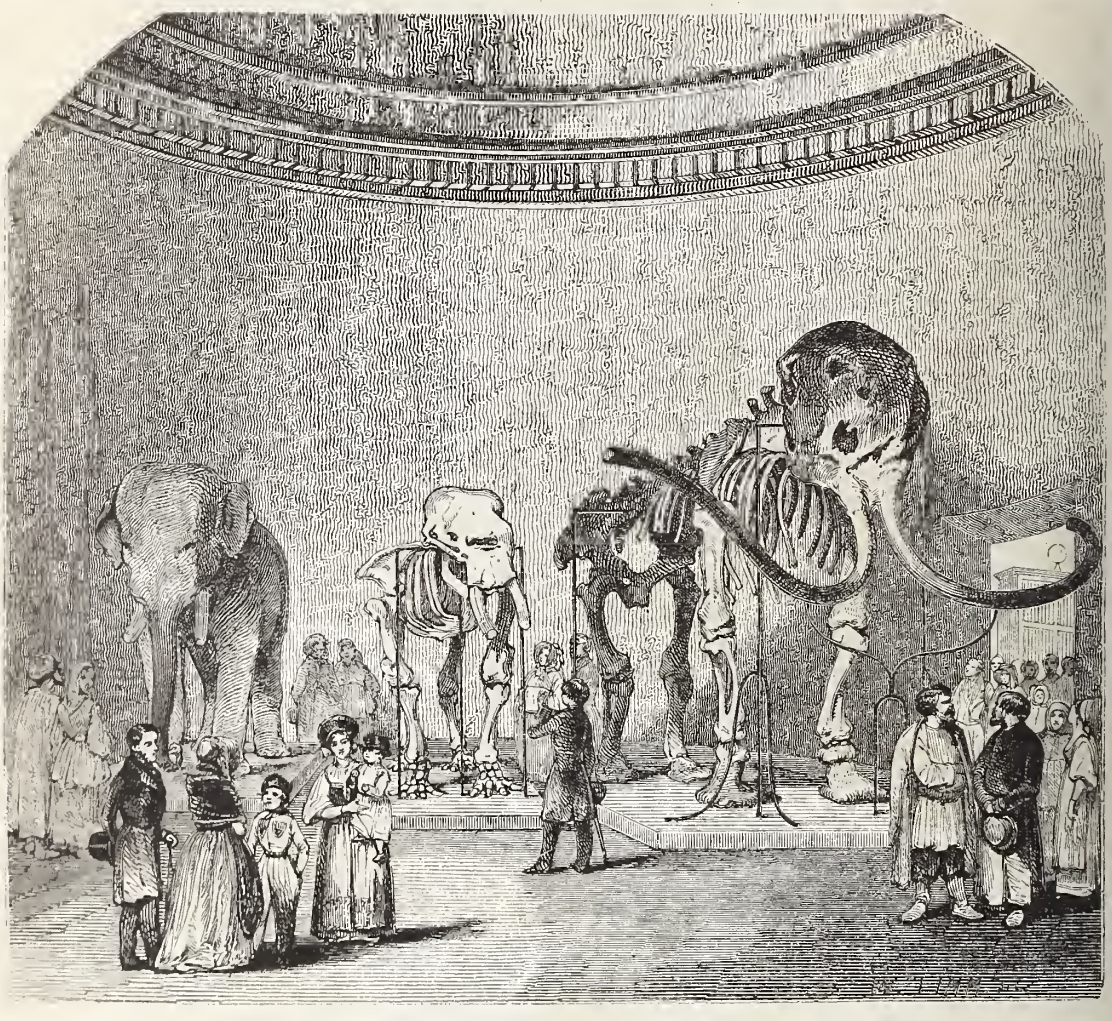
THE MUSEUM OF THE ACADEMY OF SCIENCES AT ST. PETERSBURG.

National civilisation is, in the majority of cases, a work of slow growth. Step by step nations progress in art, literature, and science. The march of intellect is very seldom a quick march; and nations do not wake up suddenly to find themselves famous. But in Northern Europe we have an instance which forms the national exception to the national rule. Under the guidance of Czar Peter, Russia was led onward at a very railroad pace, and a few years saw a country of barbarism become a land of civilisation. To this great captain of his age a grateful country has reared its proudest monument, and christened by his name its capital.

Peter the Great, during his residence in France, resolved on forming in his own dominions an Academy of Sciences, on the establishment at Paris; and he applied to that body to furnish him with their rules and regulations. He was referred to Leibnitz, and the Czar had several interviews with that celebrated philosopher, who devoted much time to forming a plan for the new Academy, which was finally established by Peter, in the year 1725; but the building which is appropriated to the Museum was not completed until the year 1790. The Academy, since its foundation, has reckoned among its members many eminent men, including Pallas, Gmelin, and Schubert. The President and the Vice-president are appointed by the Emperor. There are twenty-one professors, besides the ordinary and honorary members, and its foreign correspondents. The Academy is divided into three departments: the first is devoted to the mathematical sciences; the second to natural history; and the third to history and statistics.

The traveller who visits St. Petersburg should in no wise omit a visit to the Academy. Its library contains above 100,000 volumes, besides a very large collection of MSS., frequently written in characters of gold or silver. Besides these literary remains, there is an extensive collection of idols, dresses, domestic utensils, instruments of war and implements of peace, connected with the early history of Asia. The cabinet of Eastern coins is well worthy inspection, and, among its 15,000 specimens, none is more interesting than the tribute-money paid by the King of Persia, in 1828, to the Emperor of Russia. But even there old Egypt has a place—its curious papyrus remains are carefully preserved, to send the mind wandering from the cold north to the land of the beautiful Nile. The Ethnographic Museum consists of dresses and domestic implements of the various nations which inhabit the northern parts of Russia; also figures of many of the different people conquered by the Russians, habited in their own peculiar costumes; likewise some of Chinese, Persians, Alentians, Carelians, and the inhabitants of many of the Eastern, Pacific, and Northern Islands, discovered or visited by Russian travellers and navigators, as well as of the different nations inhabiting cold, dismal, cheerless Siberia—the prison land of Russia. There is besides a very complete collection of medals and coins, chiefly collected by Count Suchtelen. But leaving all these we enter the department which our engraving represents—*the Museum of Natural History*.

The first three or four rooms contain glass cases filled with stuffed birds exquisitely beautiful in their plumage, and well arranged. In other rooms are collected a vast number of stuffed animals; and beyond them the skeletons of brutes of common size, together with a large quantity of horns and tusks of enormous length, found in Siberia. These having been passed, we turn sharply round at the end of the long range of rooms, and face at once the Giant Mammoth, the oldest in that collection of antiquities,—so old, that Egypt is but young compared with it,—so old, that we have to look upon an unflooded world before we can know anything about its home and haunts. It is admirably placed for displaying its huge dimensions and massive bones, which are supported by iron bars. The tusks extend laterally, like two scythes in the same horizontal plane, and not in two vertical lines as in the elephant. It is, we believe, a perfect skeleton, with the exception of one of the hinder feet, which is restored in wood. The skeleton of a common elephant is placed beside it, and shrinks into insignificance when compared with the huge mammoth. The head of this antediluvian monster still retains its integuments, and many of its ligaments entire. The skin was covered with black bristles, thicker than horsehair, twelve to sixteen inches long, and with wool of a reddish-brown colour. About thirty pounds of this fur was gathered from the wet sand-bank on which it was found. One traveller humorously calculated that the animal would require an acre of grass and half a dozen trees, at least, for its breakfast. It is impossible to contemplate the gigantic structure of the skeleton without thinking of the wonderful power such a colossal brute must have possessed,—how, with its eyes burning as a sun, and its mighty step shaking the ground, it passed upon its way. Several other remarkable skeletons are preserved in the museum, among which is the skull of an antediluvian rhinoceros.



MUSEUM OF NATURAL HISTORY AT ST. PETERSBURG.

In another room of the Academy is a large artificial globe. The botanical collection is one of the finest in Europe, and the chemical and philosophical apparatus are well worthy of inspection. The Museum of Peter the Great, being that suit of apartments in which the Czar was in the habit of passing his leisure hours, is under the same roof as that of the Academy of Sciences; and here, among the objects which were once familiar to that great Russian hero, we begin to think of the mighty revolution which he wrought in that frigid land; and, after having quitted the Museum, and on wandering down the western quarter of the Admiralty Square, and on looking upon the equestrian statue of Peter the Great, we own the propriety of the whole design, and recognise in the figure something of the character of the man—the position one of daring and indomitable courage,—the face turned toward the Neva, the hand outstretched, as if it would grasp land and water, and the serpent which is trodden underfoot. There is force and expression in the whole that well befits the memory of the mighty Czar.

TINTORETTO AND HIS DAUGHTER.



TINTORETTO PAINTING THE PORTRAIT OF HIS DAUGHTER AFTER HER DECEASE. FROM A PAINTING BY LEON COGNIET.

Great was the fame of Tintoretto. Venice was proud to own the man who united in his paintings, what he taught his disciples to aim at, the design of Michael Angelo and the colour of Titian. His real name was Giacomo Robusti, but they called him Tintoretto on account of his being the son of a dyer. He was born in 1512; was the pupil of Titian, had deeply studied the works of Buonarotti, and had acquired elegance and taste by a most intimate acquaintance with the antique. People called him the furious Tintoretto, and the Lightning of the pencil; for in his early days, having been selected with some others to make designs for a large picture in the church of St. Roche, Tintoretto had entirely finished his picture, and fixed it in the appointed place, before the others had completed their sketches. In the state apartments of the palace of the Doge, he in one year completed an extensive design, including a great number of figures, representing a victory gained over the Turks by the Venetians in 1571. In the palaces, the public buildings, the churches, the monastic houses of the queenly city of the Adriatic, the rich glowing colours, the graceful forms, the bold outlines of Tintoretto were seen; and in the "Crucifixion" in the Scuola di St. Rocco, the "Marriage in Cana" in the sacristy of St. Maria della Salute, the "Assumption" in the Church of the Crucifixion, and the "Resurrection" in St. Roche, people saw the beauty of the Venetian harmony of colours united with the Florentine dignity of design. The whole mind of Tintoretto seemed occupied in the pursuit of his beloved art, the whole

affection of his nature engaged in the development of its glorious beauties.

When Tintoretto was forty-eight years old, a daughter was born to him. To the cultivation of the mind of his child the great painter devoted himself—"he shared," a French writer says, "his heart between painting and his daughter." The little child was a bud of promise. As her intellect was developed and her mind put forth its powers, she gave evidence of very great ability. She was beautiful as a child, and showed an early genius to music as well as to painting, and performed remarkably well on several instruments. Tintoretto became the instructor of his child, and under his teaching she progressed with amazing rapidity and great success. But though she was qualified to make a considerable appearance in history, she devoted her talents wholly to portrait painting. Tintoretto took great pains to direct her judgment and skill in that branch of the art, till she gained an easy elegance in her manner of design, and an admirable tint of colour. "Her pencil was free, her touch light and full of spirit, and she received deserved applause." Jacob Strada, the antiquarian, celebrated in the court of the emperor Maximilian, was painted by Marietta, and so gratified was he with the beauty of its execution, that he presented it to the emperor. She was solicited by Maximilian to reside at his court; Philip II. of Spain and the archduke Ferdinand made similar proposals; most of the nobility of Venice sat to her: but such was her affectionate attachment to her parent, and such the affectionate attachment of Tintoretto, and her love of home was strong, so that all these glittering offers were refused. She married, but still continued to reside with her father, and the old man's heart was gladdened by the rising fame of his well-loved child. He seemed to live again amid all the glory of his early years, every shower of praise, every offering of applause, were dear to him on her account; he loved to watch her as she sketched and painted in his studio, to whisper here and there a word, to see the picture grow beneath her pencil into exquisite loveliness, to notice nature reproduced in all its ever-varying shades, and ever-changing forms. His own glory appeared to be as nothing—he forgot himself in her—he lived in her renown. And the father's love was only equalled by the strong attachment of Marietta. Venice, the city of palaces, was dear to them both. It had been, and still was the scene of Tintoretto's fame; it was associated with the earliest recollections and the dearest remembrances of Marietta.

But a cloud was to shut out the sunshine that made the old man glad. Marietta, not yet thirty, was seized with a dangerous illness. Day by day he watched beside her bed; through the long, long, weary days, and through the long, sad, weary nights, he could scarcely be at any time persuaded to leave her couch; he watched the ebbing life, the ashy paleness of her cheeks, till all hope was gone, and the eyes grew fixed and her pulse ceased to beat, and they led the old man away and whispered she was dead.

That night Tintoretto returned to the death-chamber of his child. He had come prepared to execute the likeness of her who had the strongest hold of his affections, to trace the features of his daughter before she was committed to the tomb. There she lay in all the beauty of womanhood, and the strange, mysterious stillness of death. During the whole of that night the old man pursued his melancholy employment. M. Leon Cogniet has represented this last scene; the painter sombre and austere, mastering for the time his overwhelming grief, is looking upon the features of Marietta; the bed-curtain is drawn aside, and the object of his love is seen almost as if she slept, the symbol of her faith is lying on the bed, and the light of a lamp falls upon the figures with a peculiarly sombre effect. The work was completed that night,—the last touch was given, and the painter's vocation was gone, his art had now no attraction for him; fame and glory were worthless now that they would be reflected upon no second self.

When they had laid the body of his child in the sepulchre, which they had lowered it into its last resting place, Tintoretto placed his palette and brushes upon the bier, and retiring from his old associations and old companionship, lingered out his few remaining days as if every object in life was taken from him, and his only business in the world was to die.

FIREBALLS.

Meteorological observations are now made with more or less exactitude all over the world, and facts of very little apparent value are carefully recorded to add to the general store. Scientific genius will in due time derive from them those inductions which advance human intelligence and power. It is by these small but continual steps that man completes his conquests and becomes the master of nature. Many observers take care to note the quarter in which distant lightning unaccompanied with thunder appears, and how far it extends. They especially notice every appearance of forked lightning striking upwards. They attend to the quantity of rain or hail, more especially which falls in a thunderstorm, its intermittences, and its correspondence or non-correspondence with great flashes of lightning near at hand. They notice the direction of the storm, and whether it goes with or against the wind. They attend to the remarkable reversal of the wind which often follows immediately after the cessation of a thunderstorm. When violent thunder and lightning occur near, and without rain, they notice every particular of this rare occurrence minutely, and try to ascertain whether or no rain has fallen elsewhere.

Fireballs have occasionally been seen runnning along the surface of the sea, and striking and "bursting" upon ships. These appearances have been supposed to be analogous to the electrical phenomenon termed "the glow discharge." When a ship is struck by a fireball, it is of importance to notice the height of the clouds at the time, and whether or not they were remarkably depressed along the line taken by the fireball.*

Fireballs, or thunderballs, or fulminating globes, or globular lightning, or whatever they may be called, are so rare that philosophers exhibit great reserve in treating of them, and record the slightest details respecting them when stated by observers supposed to be of good faith. Nothing which has yet occurred in the experiments of the laboratory gives us the least idea of what a fireball really is. The resemblance to "the glow discharge" is a mere supposition. Whilst ordinary lightning remains but an instant, which, however, sometimes suffices to produce the most violent heat, the fireballs remain in view for some time. They shift about, they pass along slowly, they appear to have an intention, a direction, a will of their own, and they suddenly burst without leaving in the hands of those who tell the story any trace of their existence. Certainly doubt is the proper feeling with which we ought to regard many of the marvellous stories told respecting the feats of flashes of lightning. It requires clever observers, indeed, to know much of what may be done by a flash of lightning during a visit which lasted for perhaps the millionth part of a second. Yet, persons will pretend to be able to say whether the lightning entered by the door, window, or chimney; how it went along a bellrope, or glided behind a desk; how it went round the table frightening every one at it; and how it retraced its steps, and went out as it came in. Such narratives are full of exaggeration. The feats are done in such instants of time that it is impossible to seize them accurately. Optical illusion and imagination may have much to do in the production of such impressions and such narratives. Indeed, it would be quite as rash to disbelieve as to believe them. Doubt is not incredulity; and wisdom will always distinguish between them. Marvels proved are the verities of science. A well-known optical illusion may explain why persons in good faith may recount, and why they may be correct in describing, what is done by a flash of lightning in a visit in an apartment of the duration of a millionth part of a second. Every child knows how a spark at the end of a stick whirled swiftly round may seem a ring of fire; and in the same way it is, probably, that the whole course of the lightning leaves but one image of its course in the mind.

M. Babinet recently made the following statement at a meeting of the Academy of Sciences. The fact related, occurred in a house situated in the Rue St. Jacques, and very near the Val du Grace.

* See section meteorology in the Admiralty "Manual of Scientific Inquiry," and Sir Snow Harris's "Remarkable Instances of the Protection of certain Ships from the destructive Effects of Lightning, &c." London, 1847.

t is provided with a lightning conductor, like most of the public monuments. In a chamber in this house a tailor was seated, when, after a thunderclap, but not immediately after, he suddenly saw the board covered with paper, which closed up the chimney, knocked down as if by a puff of wind, and a globe of fire as big as an infant's head presented itself. It moved heavily in the apartment, sustaining itself a little above the bricks of the floor. According to the comparison of the observer of this singular spectacle, the fireball assumed the gait of a young cat in rolling itself up. It was more brilliant and luminous than hot and inflamed, and did not emit any appreciable warmth. On seeing it approaching him he placed himself behind the movement, as far as necessary to avoid contact with the meteor. The meteor, after executing divers excursions here and there in the room, raised itself up vertically as high as the face of the tailor, who remained seated, and had to lean back upon his seat to escape it. When it had risen to more than a yard above the floor, the globe lengthened, and directed itself obliquely towards a hole pierced in the partition of the conduit of the chimney. This hole in winter served as a passage for the pipe of the stove; but when this happened it was covered and concealed by the paperhangings. Notwithstanding, it was towards this point that the meteor went directly. It unglued the paper without setting it on fire, and reascended the chimney. When the fireball had scarcely time to have mounted to the top it exploded frightfully, destroying a portion of the top of the chimney, and throwing the wreck into the court. The roof, which was lightly constructed, was driven in, but nobody was hurt. The lodging of this tailor was on the third floor, but was not, however, half the height of the house. The lower floors were not visited by the lightning, which never ceased to move slowly and uniformly. The flash was not blinding, and did not spread heat, and did not show the least tendency to follow the conductors, nor to obey the currents of the air.

M. Maillot, chief of the railway station at Benzeville, on the Havre line, describes a thunderstorm which burst there. He is an old general guard of the forests, a man of mature years, of great good sense and judgment, and incapable of frightening himself for nothing. Quitting the telegraphic post to superintend a lading, he suddenly saw advancing in the air from the south-east a luminous globe. Greatly surprised he called one of the postmen of the station to see the sight. The superintendent of convoys was also present. All three were witnesses of the evolutions of this luminous bomb, which stopped and disappeared suddenly when it came above the telegraphic wires about twenty yards from them. At the same instant the thunder fell in the cemetery of Benzeville. Some rumbling had preceded the electric meteor which was followed by a heavy shower of rain for ten minutes, when the storm went and beat violently upon Criquetot-les-Nesval, where the shower caused much damage.

The wife of the station-master, who remained at the telegraphic post, declared that the apparatus near her was visibly agitated. She even saw some sparks, but was not able to give an exact account of what passed.

The retina of the eye may not be quick enough to follow all the movements of a fireball during the millionth part of a second, but the perception of a visible object continues for a certain time after the removal of the object. Just as the ear continues to hear after the sound which put the tympanum in vibration has ceased to act, the eye perceives vividly coloured objects after they have ceased to be visible. Before discrediting any statements regarding the course of a flash of lightning, it is necessary to remember that the eye retains for a time the impressions made upon it. Thus a flash of lightning appears a continuous line of light or colour. Sir David Brewster says practised observers can look at a window at the end of a long room, and then, on suddenly turning their eyes upon a dark wall, can see a correct representation of the window. Unpractised observers who are not prompt enough see a reversed picture, in which the bars are bright and the panes dark. Apparent and real motion are very different. A cannonball going at the rate of a thousand miles an hour is invisible, the moon going twice as fast scarcely seems to move. These and similar optical considerations must be borne in mind by the observers of fireballs.

A PRAIRIE ON FIRE.

On a previous occasion we have spoken of the general characteristics of those wild expanses of treeless land called prairies, pampas, steppes, or jungles; but much more of a highly interesting character might be written in connexion with the subject. In the article alluded to, we ventured to give currency to the speculation that these wide rolling or undulating plains were, at some distant period, the actual floor of the ocean; and that the fact of their being, for the most part, destitute of large trees or considerable woods was probably accounted for by the existence of immense herds of Buffaloes, which trod down the young plants before they had time to expand, and only allowed the more coarse and hardy kinds of grasses to come to perfection. But another cause will explain how, for long periods of time, the prairies of North America grow trees only on their extreme limits; and this is, that the Indians who inhabit these wild plains periodically set fire to the herbage for the purpose of both clearing their hunting-grounds of the underwood, and of collecting the animals into a small space for the greater convenience of slaughtering them. We *have* heard, though we hardly know what faith to put in the statement, of the pampas of South America being fired by the Indians for the purpose of destroying the white settlers.

On the occurrence of this periodical firing of the long dry grass of the prairies, the scene is described to be both grand and terrible. Far away in the distance there appear unmistakable evidences of the conflagration in the excessive brightness of the horizon, and the volumes of dark smoke and the blood-red sky above. A traveller who witnessed such a scene as we have depictured here—where immense herds of buffaloes and other wild animals of the plain were rushing tumultuously from before the fiery blast in inextricable, undistinguishable confusion—thus describes his sensations:—"As far as the eye could extend, on either side, nought was to be distinguished but one bright mass of flame—some twenty feet high—above which hung, in dense clouds, dark black smoke; while, yet higher still, light white vapour floated and rose into the heavens. Around, all was bright as day, and the long wiry grass could even be discerned bending before the fearful element, as it advanced to annihilate. No breeze swept over the plains; but yet the fire roared and raged, as if hurled along before the breath of a hurricane. The fleeting instants of suspense that elapsed before the fire reached the spot where I lay, seemed almost like long hours. My fate hung in the balance, and uncertainty was worse than death. Years have passed away, but when lying on my calm and quiet bed, I yet start with alarm: the shadows of the past flit over my memory and I fancy myself yet awaiting the moment that would enclose me in that fearful flaming sea. The agony of suspense was passed; fire was around, beside, within me, as I swallowed the hot, furnace breath of the atmosphere. My very vitals were dried up, and my brain seemed ready to burst, as my swollen blood-vessels distended to the utmost. Oh, thus to perish!—in the spring of life: friends, home, early days, for an instant crossed my mind. Oh! but to die by fire!—frightful, fearful! Overwhelmed with the horror of the scene, I fell senseless to the earth. When I recovered, the wind had changed, and the fire burned red and sullenly in the extreme distance." On such occasions the only hope for the traveller is in the swiftness of his steed and his own perseverance. If he pauses he is lost, and the fiery deluge overtakes him. Sometimes the conflagration extends over many miles of country, till it comes to

> "Where the broad river has made
> A path where the blazing procession is stayed."



A PRAIRIE ON FIRE. FROM A DESIGN BY W. H. FREEMAN.

The sufferings of the wild animals on such occasions is described to be intense; and as they rush in indiscriminate haste to escape the "plague of fire" behind them, we may well imagine some such scene as the artist has so ably delineated—buffaloes, bears, wolves, horses, stags, and wild cats, bursting frantiely onward, all differences of species and varieties of propensity being lost and blended in sight of the common danger. A most stupendous sight must be that of a prairie on fire!

BEAR CHASE IN THE ALPS.



BEAR CHASE IN THE ALPS IN FEUDAL TIMES.

The wild sports of the Alps have decreased with the beasts of the chase, which were formerly, there as well as almost everywhere else, remarkably abundant. There are still plenty of wild birds during the season; woodcocks and snipes, plovers, partridges, and water-fowl, are met with on those mountain lakes and glacier heights; the great vultures of the Alps are among the most formidable birds of prey, and strange stories of wonder and daring are told of their strength and courage. Added to these is the chamois hunt, in which the hunter must have his sight and hearing peculiarly keen, his footstep sure, his hand firm and steady, with a presence of mind not to be suddenly startled in the most imminent peril. But all these wild sports are certainly not comparable to the scene which our illustration gives of a bear hunt on those dangerous Alpine heights.

It is a picture of the past, yet full of interest and excitement; there is an air of romantic grandeur over the whole well fitted to the time it is intended to represent—the days of feudal sway. The tall dark pines strangely contrast with the rough masses of

broken rocks, the huge blocks of ice, the frozen snow that has settled on the craggy peaks, and falls in many a wondrous icicle; the deep, dark chasms that here and there present themselves, the mass of foliage and trunks of trees at the front, the sharp outline of mountains rising in the distance, the mysterious cavern with its dark and unknown depths; the hunters in the picturesque old costume of the time, the lances gleaming in the light, the dogs full of life and energy, and the objects of their prey hard by their cavern home; two huge bears already attacked; some of the hunters are sounding bugle-horns, and the whole together forms a scene of intense excitement.

Bear-hunting in the Alps was a common practice in that old time. Attended by his bold retainers and pack of hounds, the feudal lord would leave his castle home, and ascending the ice-covered acclivities of the Alps, wage war with grisly bruin. Those old days were the time when men were mad for fighting, when the excitement of peril was the only thing they relished, when to lead a gallant company into the field of battle and hack and slay and leave the battle-field a field of triumph was all Sir Tristram cared for. Monarch, indeed, of all he surveyed, he held the lives and liberties of those who called him lord at a cheap rate; the system of vassalage made him the paramount controller of all they had, and in the majority of cases that power was most fearfully and oppressively employed. And when Sir Tristram had no other work in hand—when he had no predatory expedition to undertake—no battle to fight—no crusade to engage in—when he felt disposed for relaxation, nothing was so well adapted to him as some rough sport, such as that which our engraving pictures.

Bears are animals, for the most part, of large size, and great muscular powers. They are seldom found in any other than mountainous or thinly-inhabited countries. During the winter several of the species lie concealed in holes in the ground, and in a torpid state. Some of the species are able to use their four feet as hands in conveying food to their mouth, or in seizing hold of any object. From the length and sharpness of their claws these animals are able to climb trees in search of prey, or to escape the pursuit of their enemies. We are informed that black bears are so remarkably attached to each other, that the hunters never dare to fire at a young one while the parent is on the spot; for if the cub happened to be killed, the mother becomes so enraged, that she will either avenge herself, or die in the attempt. If, on the contrary, the parent should be shot, the cubs will continue by her side long after she is dead exhibiting the most poignant grief. In the olden time the attempt to slay or capture a bear was attended by far greater risk than it is at present. The hunters must come to close quarters, and to follow the bear with hound and horn was a perilous adventure. Perhaps nowhere more perilous than in the Alps. Travelling, there, is a work of difficulty and danger under the most favourable circumstances; but chasing a bear from crag to crag, over beds of snow and blocks of ice, was a far more difficult matter. The frequent occurrence of avalanches renders the passage of the Alps peculiarly dangerous. The smallest sound is capable of causing a fall of snow. It is necessary in some parts to remove the bells from the horses or mules. The sliding avalanche is, as its name implies, the sliding of a body of snow down a declivity; it is occasioned by the melting of the lower strata, which are immediately in contact with the warm surface of the earth, when the bond uniting the mass to its base is, literally speaking, dissolved. Pushing with your foot against a bed of snow is often sufficient to determine the fall of an avalanche. It is unsafe to cut down grass on very steep declivities, as it binds the snow to the ground and prevents its sliding down. You would think that you saw a river of silver surrounded by a cloud of extremely fine snow, precipitate itself from high rocks as the avalanche approaches; the mass augments by degrees, —it advances with a noise resembling thunder, prolonged by the echoes in the midst of the sublime silence of the Alps:—

"From peak to peak, the rattling crags among,
Leaps the live thunder! not from one lone cloud,
But every mountain now hath found a tongue,
And Jura answers through her misty shroud
Back to the joyous Alps who calls to her aloud."

Truly a dangerous place for a hunting party, if we are to estimate the perils of that chase in the dangers which bear-hunters in other parts of the world, and in our own days, encounter; and remember all the natural dangers of the locality which were added to the dangers of the hunt itself.

In Lapland the people set about a bear-hunt in the following way:—A peasant generally goes out in search of his trail, and having found it, moves in a ring some miles in circumference, to make sure of having him within it. He then gradually contracts his circles, till he comes to the animal's retreat. Weeks are sometimes expended in this search; the peasantry are then summoned to a skall by the Landshofoding, or governor of the province, and put under the direction of the jogmoestare, or ranger of the district, who marshals them and commands their movements. The peasants are generally formed into circles, and come armed with whatever weapons they can procure. Though opposed singly to a whole host, the bear often spreads havoc among his assailants. Every ball that enters his huge carcass but adds fire to his fury, and woe to the individual whom his wrath has singled out. It ceases to be a mere sport, and nothing but the greatest self-possession can save him from a miserable death.

Dillon tells us of a bear-hunt which took place near Hernosard, in Lapland, which shows us that even tiger-hunting does not exceed it in excitement and peril. The bear on this occasion was very large—nothing like an American bear, with which an Indian can grapple, but an enormous beast strong enough to carry off a pony. He had been wounded in ten places, and all present had intrenched themselves, awaiting some desperate effort on his part, should not a lucky shot through the head speedily give him his quietus. At this moment, a man bolder than his companions, advancing before them, the bear rushed upon him, tore the gun from his hands, and began to wound him with his tremendous claws. The wretched man was unable to contend with his muscular antagonist; already his wounds were letting out his life, when a young Norrlander, unable to look quietly on, rushed to his assistance. Besides the danger which he himself incurred, and which of course he had no feeling of, there was some difficulty in shooting the bear without striking the man. As he advanced, the bear rose on his hind-legs to meet his new opponent—his victim dropped before him—the Norrlander seized the favourable opportunity, raised his gun with both arms high above his head, to bring it in a horizontal position on a level with the bear's, and trusting to his feelings more than sight, discharged his piece. An immediate death-wound could alone save either from their enemy. The success which the brave man deserved attended him, and the ball passed through the brain of the bear, which fell dead on the rescued man.

A she-bear with her cubs is a formidable animal to encounter. In cases of danger she drives the cubs into the trees for safety; this she effects with so much violence, that the cries of the little ones may be often heard a considerable way off; she then retreats to some little distance. This is a sure token that she means to defend her cubs, and it is then very dangerous to attack the young ones, unless the hunter is first freed from the mother, who in this case is sure to attack him with fury. A peasant of Dalecarlia, one day, in a forest, fell in with a young bear, which had taken refuge in a tree. This he shot at, and brought the cub to the ground; but his triumph was of short duration; for the cries of the cub soon brought the mother, all furious with rage, to its rescue. Having discharged his gun, he had nothing wherewith to defend himself at first; he was quickly overpowered, and desperately bitten in every part of his body. He would inevitably have lost his life, had not the bear at length severely wounded herself upon the long knife which every peasant of the north carries attached to his girdle. Feeling the pain, she turned from him, and spying her cub on the ground, which now lay dead, she took it up in her mouth and carried it off, to the no small joy of her antagonist.

The bear is a fast and good swimmer, and in hot weather bathes frequently. The bear very often attains to a great size; one of them weighed 750 lb. To chase such an animal, and to encounter such a foe required a stout heart and a vigorous frame; and because of this, the sport was a peculiar favourite with baronial knights in feudal times.

THE HISTORY OF BANKING.

The word "Bank," in barbarous Latin, *bancus*, literally means a bench, or high seat. Hence the king's judges came to be called in the records *justiciarii de banco*, judges of the bench, which gave rise to the present phrase, "raised to the bench," while the word "bench" was appropriated to the seat of justice. The word "bank," of similar origin, though coming immediately from the Italian *banco*, was applied to the table of the "money-changers."

As when men brought their goods to market, they needed money as a medium of exchange, so when merchants from different nations transacted business with one another, the means of facilitating the exchange of their different coins became a commercial necessity. The money-changers mentioned by Matthew, in his Gospel, who took up their position in the temple, probably discharged this function for the foreign traders in Jerusalem. It is likely that they also lent money on interest; and that they paid interest for money deposited in their hands, for safe keeping. In Athens, in the days of Demosthenes, the banking system seems to have been carried out fully. The bankers received money at one rate of interest, and lent it out at another. They also advanced money upon the security of goods, and accepted draughts on commercial houses at other places,—or, as we should say, discounted bills of exchange. Not having arrived at the division of labour which now prevails in Lombard-street, they added the trade in foreign coins to that of money-lending. They had their millionaires in those times—great and powerful speculators—Rothschilds; and these sometimes advanced money to the state for public purposes.

The principle of co-operation, which has wrought such wonders in modern times, was not unknown in ancient Greece; for Zenophon, in a treatise on the revenues of Attica, proposed the formation of a joint-stock bank, the subscription to which should be open to all Athenians. This plan was proposed to the citizens in order that the whole free community might profit by the high rates of interest paid by commercial speculators, which sometimes rose to 25 per cent. But the shareholders in this national bank were not to receive their dividends directly. The profits were first to be applied to public works,—"To improve the port of Athens, to form docks and wharfs, to erect halls, exchanges, warehouses, market-places, and inns, for all which tolls and rents should be paid; and to build ships to let to merchants." The grandeur and public spirit of such a conception bespeak a high state of civilisation, and prove that however society was disturbed by factions, commerce may have been then as it is now, one of its strongest bonds.

When the wealth of subjugated nations had been amassed in the city of Rome, bankers became necessary. They were called *argentarii*, and their establishments *tabernæ argentariæ*. The business of these establishments was conducted pretty much as banking is conducted in our own day. They were depositories of the money of the wealthy, who through them made their payments by written orders, which are now called "checks." For the money thus deposited they paid a small interest, and lent it at a higher rate. But banking was by no means so respectable in ancient Rome as it is in modern England: the same odium attached to it as now attaches to lending money at usurious interest. The Roman bankers also took charge of public sales, and performed all the duties of modern auctioneers.

With the Roman Empire perished, not only the monetary system, but the whole fabric of ancient civilisation. Invasion produced anarchy, and the chaos gradually resolved itself into the rude and insulated governments of feudalism,—in which the law of the strongest prevented the public faith necessary to the operations of the banking system. Unprotected trade was obliged to proceed silently and cautiously, and to conceal its gains lest it should attract the notice and tempt the rapacity of the neighbouring baron, and his band of marauding retainers. By combining, however, for self-defence, by walling their towns, and subsidising those whose plundering visitations they dreaded, the mercantile world gradually got into a state of comparative security; and then commerce and civilisation advanced with equal steps, and flourished principally in the cities of Italy, which compassed nearly all the trade of Europe. Here, again, bankers were established. They carried on their business first in the open market-places, on benches,—and hence the word bank.

The Florentines were pre-eminently distinguished for their manufacturing and commercial enterprise, and their city became the centre of the money-transactions of Europe—the Athens of the middle ages. For their success in commerce, and their rapid advancement in civilisation, the Florentines were much indebted to the freedom of their institutions,—to the energy inspired by self-government. This gave them a decided superiority over the inhabitants of the rest of Italy. "The popular nature of the government," says Mr. Roscoe, in his history of Lorenzo de Medici,—"not subjected to the will of an individual, as in many of the surrounding states; not restricted, like that of Venice, to a particular class,—was a constant excitement to exertion. Nor was it only on the great body of the people that the good effects of this system were apparent; even those who claimed the privileges of ancestry felt the advantages of a rivalship which prevented their sinking into indolence, and called upon them to support, by their own talents, the rank and influence which they had derived from those of their ancestors. Where the business of government is confined to a few, the faculties of the many become torpid for want of exercise; but, in Florence, every citizen was conversant with, and might hope, at least, to partake in the government; and hence was derived that spirit of industry which, in the pursuit of wealth, and the extension of commerce, was, amidst all their intestine broils, so conspicuous and so successful. The fatigues of public life, and the cares of mercantile avocations, were alleviated at times by the study of literature, or the speculations of philosophy. A rational and dignified employment engaged those moments of leisure not necessarily devoted to more important concerns; and the mind was relaxed without being debilitated, and amused without being depraved. When Boniface VIII. celebrated at Rome the plenary Indulgence, or jubilee, in 1300, no fewer than *twelve* of the ambassadors from different states and sovereigns, on that occasion, were Florentines. On this singular circumstance the Pope remarked that the Florentines were a fifth element of the world.

The first public bank established after the revival of commerce in the middle ages was that of Venice, in 1157. It was an importation of the public creditors, to whom the state granted certain privileges, among which one was that the merchants were obliged to make their contracts and draw their bills in bank-money, and not in the current money of the city, over which it always bore a premium, or *agio*. This word *agio* was used to signify the differences in the valuation of moneys. For example: Five gold pieces, of 20 francs, as they issue from the mint, are worth 100 francs. But, if they have been reduced in weight, either by the means of circulation, or by improper means, to the amount of 5 per cent., their real value is only 95 francs, though their nominal value remains the same. The sum of 5 francs, which is necessary to make the nominal equal to the real value is the *agio*. The currency of the smaller states is, to a large extent, made up of the clipt, worn, and diminished coin of the larger countries with which the inhabitants have dealings. Hence the necessity of establishing banks, which, under the guarantee of the state, should be bound to receive deposits and make payments according to a standard value. Such banks were established at Venice, Genoa, Hamburg, Amsterdam, &c. The money of such banks bore a premium equivalent to the deterioration of the coins received. Each merchant was obliged to have an account with the bank, and thus cash payments were made without the employment of coin, by the transfer of the sum due from one merchant's account to another in the bank-books.

The bank of Genoa was established in 1407; that of Amsterdam, in 1609; of Hamburg, in 1619; of Vienna, in 1703; which gave way to the Austrian National Bank, in 1816. The Imperial National Note Bank of Russia was established in 1786. The Prussian Banks of Berlin and Breslau were erected in 1765. The present bank of France, one of the best managed in Europe was established in 1803. The official return of its operations, ending September 25th, 1844, gives the following items:—Sundry cash receipts, £44,309,380; cash paid, £44,173,028; commercial bills discounted, £11,140,896; notes outstanding, £9,636,724; cash in hand, £10,449,176; public securities, £2,009,200.

THE FOUR EVANGELISTS.

BAS-RELIEFS IN WOOD IN THE MUSEUM OF ALENCON.

The world's greatest revolutions are those which have been effected in comparative silence. The wild tumult of a popular outburst dies away, but the omnipotence of truth and right works on, uprooting old habits, old customs, old institutions, and old principles, and lives for ever. Truth is the indestructible ark that the deluge cannot bear away. Christianity has wrought the most wonderful change in the world's history. The unlearned men who quitted humble occupations for far more hazardous lives, and who undertook to utter those truths and to enunciate those principles which should remodel existing institutions, and reconstruct society—gained for themselves a lasting place in the chronicle of the past. The man is identified with his work. The memory of the evangelists is secured in connexion with the life they have written. Matthew, the despised publican; Mark, the young disciple; Luke, the painter and physician; John, the fisherman, are known to us, far better by the Gospels which they have written, than by the deeds which they accomplished. Yet, were they men whose lives were glorious in themselves. Theirs was a stern business, they had a hard battle to fight, but they fought it; they were veritable heroes fully alive to the deep responsibilities which rested upon them. Admiration of the truly great is the life-breath of society. What wonder, then, that those names should be cherished, that the words of the men of Palestine should stir the heart more than a trumpet, and that in a thousand varied forms the Evangelists should be remembered?

The scenes which the Evangelists have described artists have portrayed, and thus religion and art have been intimately connected, and not only the scenes from that wonderful life-history, but again and again have pictures and statues of the writers engaged the attention of the greatest men. This is more especially the case on the continent. In glowing colour from the canvass, they look down upon us in old Italian churches, and their sculptured forms arise before us in all that stern majesty which that art possesses. Sculpture is an art of much more simplicity and uniformity than painting. The object of its pursuit may be comprised in two words, form, and character; and those qualities are presented to us, but in one manner, and in one style only. Its solemn and austere character well suits it for preserving and presenting to us the forms of the mighty dead. In the French churches as well as in those of Italy, some beautiful specimens remained for a long time of the old masters in painting and sculpture, but in the fearful outburst which came at last like a deluge and swept away all things before it, when the voice of the people broke the slumbers of the rulers, when the old forms of government gave way, and new thoughts and new designs, and new governments sprang up, they who had been accustomed to associate the palace with the church, and the king with the bishop, stripped the noble ecclesiastical edifices of their rich adornments, and pictures and statues were for the most removed from the churches and monastic houses.



ST. MATTHEW.



ST. MARK.

The museum of Alençon possesses a score of pictures, taken from religious establishments, suppressed during the first French revolution, 1792; namely, that of the Jesuits of Alençon, and

the Charter-house of the Val-Dieu. These, together with some more recently executed specimens, were exhibited in 1844, under the title of Museum, a name which was perhaps not altogether the best adapted for a small collection of works of art. There is nothing very superior or rare, two or three only deserving attention, but these two or three make up for the commonplace character of the others. "The Marriage of the Virgin," is a grand composition, by Jouvenet, painted in 1691. It was one of this master's pictures which drew forth the high eulogium of M. Watelet: "In this picture Guercino is united to Caracci, or rather it is a Jouvenet, breathing defiance to all the great masters." The design at Alençon is not considered equal to the two great works of this artist; the "Descent from the Cross," and the "Miraculous Draught of Fishes," both preserved in the Gallery of the Louvre, but is nevertheless interesting, as being the work of a great man. A picture by Restout, one of Jouvenet's pupils, is very fine, and possesses most of the peculiar merits of that master; "Moses receiving the tables on Sinai," and the "Four Evangelists," by Jollain, are but paintings of mediocre talent. Besides these, there are several portraits possessing great merit, among others, that of "Jean le Noir," theologian of Seez, painted by Aved, and betraying in the countenance that intelligent and yet ironical spirit for which the immortal author of Pentagruel and Gargantua was so distinguished.

The "Four Evangelists," of which we give designs, are bas-reliefs in wood, of the sixteenth century, and are, without doubt, the finest things in the museum. They are generally attributed to Germain Pilon, but it is hard to imagine a more unhappy conjecture. There is nothing in these figures which bears any resemblance to the light and elegant statues of the sculptor of Valois. Pilon studied grace and elegance, the author of these bas-reliefs excels in attitude and force. The first belongs to the sixteenth century, when French art was not so much influenced by the Italian school; the second appears to belong to that period when the French artists having crossed the Alps with Jean de Douay and Franckeville became completely Italianised by studying under the disciples of Michael Angelo. Nothing is more prejudicial to the history of art, in any country, than the custom of attributing nearly all pieces of statuary to the sixteenth century, and to the great masters who are known to have flourished at that period. With this system of attributing every work of art to artists whose fame has long been established, we are in danger of permitting the true authors to remain altogether unknown. Sculpture is practised in various ways: sometimes in the formation of insulated statues or groups, called in technical language the round; sometimes in representing objects more or less raised without being entirely detached from a background. This species of sculpture is defined according to the extent of the relief used—alto-relievo, when nearly round; basso-relievo, when it is slightly raised; and mezzo-relievo, when a medium is preserved between the extremely high and very flat relief. In Egyptian sculpture is found another variety of this manner of working basso-relievo; the outline is sunk in the plane or ground, and the parts are then formed and rounded on the principle of basso-relievo. By this mode of operation there is usually no projection beyond the surface of the original ground; to gain effect, therefore, in this kind of relieved intaglio, the sculptures were frequently painted by the Egyptian artists.



ST. LUKE.



ST. JOHN.

BANDEAUX IN FRANCE.

English young ladies have been known to wear handeaux round their heads, with gold buckles upon them, in a burning sun, until the hair under the buckle has turned white. Soldiers wear helmets on their heads which may be useful in resisting hullets or sabres, but which certainly must he efficient in causing headaches. The heavy black hat is nowadays in England frequently supplied with a ventilating apparatus; hut certainly it is a reproach to the civilised world that the heads of European men, the temples of the thoughts which lead the human race, should still be encased in things equally unwholesome and unsightly. Hippocrates states that the Macrocephales, a Scythian nation, had the custom of kneading and lengthening the heads of their children. Certain tribes of North American Indians have a custom of flattening the heads of new-born infants hy means of two boards, one placed in front, and the other hehind the occiput. Their object is to make the head look like a full moon. The parents wish the heads of their children to realise an ideal which prevails also among oriental nations, and to he "beautiful as moons:" the more lunatic the more admirahle!

Dr. Lunier, chief physician of the Lunatic Asylum at Niort has published, in the *Annales Medico-physiologiques*, an account of similar barbarities which still prevail among the inhabitants of the department of *Des Deux Sevres*, and are not uncommon in *Charente*, *Charente Inférieure*, and *la Vendée*. M. Foville, formerly physician to the Lunatic Asylum of *la Seine Inférieure*, described in 1834 a deformity of the skull, extremely common in Normandy, which he ascribed to the use of a bandeaux, with which it is the custom to surround the heads of new-born infants. M. Delaye, in 1834, related his observations respecting certain depressions across the skull which he had seen at Toulouse, and for which he blamed the headdress. It is iudeed presumable and to be feared that the deformity may be found in other departments of France, the use of the circular bandeaux being still very general.

The following are the deformities most frequently observed:—The front depressed and retreating, as if thrown hack; the skull flattened to the level of the *fontanella* behind, and a little beyond that *fontanella*; (the *fontanella* is a little cavity at the joining of the pieces of the skull;) a depression across the skull which is sometimes prolonged over upon the sides; and a furrow round the head which divides it into two segments of a sphere like a calabash.

The head of the new-horn infant is surrounded with a bandeaux; when the child has completed its fourth month they replace tho bandeaux with a head-piece in pasteboard; at a more advanced age they add to the pasteboard cap an iron wire, the two extremities of which are supported upon the ear before the *tragus*—the little hutton beneath the part hehind the ear. The boys, in good time, have the advantage of going bareheaded while the women have the misfortune to carry all their lives a handeaux, often very tight. In some of the *communes* of the *Arrondissement de Nielle* the round cap has been found fastened under the chin by an iron curb or hridle very tight, which impedes the circulation of the blood in the head and the movements of the tongue.

Sound minds are never found in these deformed heads. Among 38 women with deformed heads 13 were idiots, 5 imbeciles 7 epileptics, 1 hysterical, far from intelligent, 2 paralytics, 8 insane, 1 hypomaniac, and 8 erotomaniacs. Of 10 men with deformed heads 1 was an idiot, 2 imbeciles, 2 epileptics, and mad.

The proportions of the numbers of the deformed heads were as follows in the department of *Deux Sevres*:—Of 27 hoys, the deformed were 7; of 20 girls, 3 only in the same population. In the hospital at Niort, of 8 men 2 had the depression across the head; and among 9 women 2 had the depressions. In two dormitories occupied by 32 soldiers, 2 had heads flattened behind, a German and an Alsacian, 2 had the depression across, 2 had the flattening in front, a Norman and an Angerin, 2 skulls had a projection to an angle ahove the front, namely a native of Niort and a Breton, the last is an epileptic.

Of the extent to which these deformities prevail in France, a tolerable approximation may be formed from the following facts —In a dormitory occupied hy 32 soldiers, 8 had deformed heads. I observed the heads in the first full omnibus in which I happened to he, after writing the preceding paragraph, and this was in the best quarter of Paris, the Faubourg St. Honoré. Of 17 passengers, 3 women and a man had deformed heads.

There is reason to helieve that the practices which produce these deformities prevail in Germany as well as in France Vesale (*de humani corporis fabrica*) says, the Germans deform the heads of their infants hy making them sleep upon their backs The Mussulmans round the heads of their infants by means of circular compression.

M. Lunier has heen struck with the length of the heads of women afflicted with erotomania. Erotism is common among idiots. These two facts, he thinks, support the opinion that philoprogenitiveness resides in the back part of the head. Who can tell what the moral and mental deformities may be consequent upon these deformities of the head? Who can say how far these iron and pasteboard caps may act as hushels which extinguish the light of the soul?

NEEDLE-MAKING IN AIX-LA-CHAPELLE.

THE COMMERCE OF NEEDLES.

Many branches of French industry owe their rise and progress to the fostering care of the government, or of societies formed for the purpose. Tho manufactories of porcelain and tapestry, which sent such splendid contributions to the Great Exhibition in 1851, were, strange as the fact may seem iu England, the work of men paid and trained by the government. Medals, "honourable mentions," and decorations, are the great rewards for which the industrial classes in France labour. The positive pecuniary advantage of improvements in manufacturing processes seems to be by no means so powerful an incentive to exertion as in England. Many of the greatest achievements wrought by Frenchmen in art and science have thus been owing to the successful working of external agencies upon the national vanity. Whatever we may think of the means, the result has in most instances been highly successful. It is to influences of this sort that French needle-making also owes its present state of prosperity.

The society which was instituted for the purpose of encouraging needle-making in France has exercised a very useful influence over this branch of industry. In the first years of its existence it published *bulletins* or notices relative to the fabrication of needles, it was very assiduous in bringing forward the improvements which M. Abraham had made for pointing needles, and at the same time preserving the health of the workmen, who had hitherto suffered severely from that department of the manufacture. Several other most important improvements were the result of the spirit and emulation which had been aroused by the prizes which from time to time were offered by the society, and the medals which rewarded every effort to facilitate the work.

The society also instituted a prize for encouraging a superior fabrication of the steel wire in use at the needle manufactories; but the conditions imposed by the programme were not complied with,—and the prize of 6,000 francs was withdrawn in tho year 1827. Afterwards two medals were given for some rather successful experiments,—one medal of gold and the other of silver. The society has contributed very greatly to the perseverance of inventors, by the severity but justice of its decision. A jury fully competent to decide are selected, and medals of bronze and silver are given from time to time.

There are great difficulties which oppose the introduction of new improvements into any branch of manufacture. These difficulties differ in their nature, it is a hard matter to engage capable workmen,—to overcome old prejudice, and induce them

to adopt novelties,—it requires moreover no lack of funds—every step needs money, and only those who have the monetary ability can carry out their plans with any degree of success. These facts are the same all the world over. Several very important improvements were gradually introduced into the manufacture of needles, and a heavy duty was imposed upon all foreign importations of this article of commerce; this duty was after some time increased from 200 francs upon two hundred and fifty pounds of needles to 1,000 francs. But as this system was found to be in a great measure ineffective another method was adopted, which rendered the duty more or less according to the quality and finish of the needle.

The price of French needles is extremely variable, differing, of course, according to their size and quality. It descends to three francs, to two francs, to one franc for a thousand needles of the commoner sort,—that is to say, at the rate of a penny a hundred. In the retail commerce of the superior needles, we find that they are tenfold the last-mentioned price. The English needles, or needles manufactured in the English fashion, are sold for one franc fifty cents, or two francs the hundred. Needles produced at Aix-la-Chapelle fetch ten or twelve francs a thousand. During the ten years between 1827 and 1836 inclusive, more than one hundred and four thousand pounds of needles were imported to France, producing a revenue of £62,000. The exportations were of a very insignificant character,—in 1832 about 2,800 pounds weight, and a somewhat larger amount in 1836.

Since that period the manufacture of needles in France has very greatly improved, and the home consumption, as well as foreign exportations, have proportionably increased.

A few words in conclusion respecting the manufacture of needles in England may not be uninteresting nor inappropriate. Needles made of wood and bone were formerly common in England. Our first steel needles were supplied from Spain and Germany, and this species of importation continued until a sufficient quantity could be made in this country. When the first Queen Mary reigned, old Stow informs us, needles were sold in Cheapside and other busy streets in London. The common notion seems to be that one Christopher Greening, with his wife and three children, introduced needle-making in 1560, at Long Crendon, in Buckinghamshire, where it soon became the staple trade. In the days of Cromwell's protectorship, the needle-makers were incorporated. Their crest was originally an apple-tree and serpent; but now a Moor's head in profile. On the shield are three needles in a line ducally crowned; supporters, a man on the right side, and a woman on the left, with the motto "They sewed fig-leaves together and made themselves aprons."

Mackenzie appears to have been the first to establish a needle manufactory in Whitechapel, although it is said that the needles were only completed at his workshops, but were principally wrought in other parts of the country. However this may be, the fame of these Whitechapel sharps has spread far and wide as being the finest, the strongest, the best in the trade. It seems that Mackenzie, notwithstanding the fame of his needles, became embarrassed, and that in order to pacify one of his creditors, John Rawlings, he gave up his tools in payment of his account. One of the instruments thus obtained was a tool for burnishing the eyes of needles; this was called by Mackenzie his money spinner. With this newly-invented machine, Rawlings was enabled to make superior needles to any other maker; he also silvered the eyes of needles for other makers, for which operation he received one shilling per thousand. There is a story told of a person named James Waterhouse, who one dark night took Rawlings 6,000 needles to silver, and who, when he had delivered them, placed a ladder to the window where Rawlings worked, and discovered the process of silvering the eyes, which he made public.

The needle-makers of Alcester labelled their common qualities with Whitechapel labels; by this means, and the greater facilities for needle-making in the neighbourhood of Alcester, the trade declined in London, Long Crendon, Chester, and Limerick. The needle-makers followed the trade, which then became concentrated on the borders of Warwickshire and Worcestershire. Redditch is delightfully situated on an eminence, and is the capital of the needle-manufacturing district. It gives employment to 4,000 persons. The prevalent opinions that needle-making is exclusively confined to Redditch is incorrect, although a short time since positively stated by one of our London newspapers.

In 1790 two-and-a-half millions of needles were made per week in this district. The process of drilling the eyes was introduced about 1793; but the operation rendered the price of the needle so high, that it was soon discontinued. Needles were at that time pointed and scoured at a mill which was worked by horses—this horse-power was superseded by a water-mill, and at Studeley—the very centre of the needle-making district—steam power was first used for this purpose. Necessity, they say, is the mother of invention, and by tracing the progress of any manufacture, from the first rude design to the perfect system and economy now adopted, we find that nearly every improvement has been brought about by necessity. The slow wearisome process of needle-making needed abridgment, and one after another improvement in the manufacture shortened the labour and lowered the price. The first idea of a stamp for needle-making we owe to a retired button-maker; the process of gilding the eyes, to a firm at Birmingham; the punch which makes the eye of two needles at each pull of the press, to Abel Morrall, to whom we owe another important improvement in the "art and mystery of needle-making,"—namely, a machine for filing one hundred needles at a time. Abner Mellen, of Redditch, introduced an improvement in the method of dressing buffs used in polishing needles. A little later we find Abel Morrall at work again inventing a machine for soft-straightening needles, which would do more in one hour than could be done by hand in twelve. Then, again, comes an invention for making oval-eyed needles, which would not so easily cut the thread, and burnishing them by a patent machine. In 1840 Joseph Turner, needle-manufacturer of Redditch, revived the practice of hardening needles with oil instead of water.

We quote the following from a little work on needle-making, by Mr. Abel Morrall:—"In 1844 the operative needle-makers formed a trade's union amongst themselves. In 1846 the needle-pointers "struck" for an advance of wages, although they were earning £2 to as high as £6 per week. But little skill or labour is required in the process of pointing; but in consequence of the needles being ground on a dry stone, the dust from the needles is inhaled by the pointer, and settles in his lungs, so that his life is of short duration, seldom exceeding thirty-five years. Their wages were mostly spent in intoxicating liquors, and other degrading practices—their maxim being 'a short life and a merry one.' The pointers were about the most degraded part of the population of the district: only about one in six could write his own name. Benevolent men had often sought to reform this state of things. The Society of Arts offered a premium for the invention of an apparatus which should prevent the entrance of the dust into the lungs of the dry grinders. In 1821 S. H. Abraham, of Sheffield, sent to the society a model of a mouth-guard, which was approved of and found to answer when used by the needle-pointers; but they refused to use it for no other reason than the fear that it would tend to reduce their wages. The pointers continued to act thus till the time of the above-mentioned strike in 1846. The manufacturers refused to give the advance, and the money of the pointers was at length all gone, so that the greatest distress prevailed amongst them. The masters now called a meeting to arrange the prices to be paid to the pointers: for some sorts of needles the prices were advanced, and for others reduced. It was also arranged that Abel Morrall should go to Sheffield, to inspect the fans used by the grinders, and bring back a report to the needle-manufacturers, which was done, and the fans introduced into all the mills that were under the control of manufacturers. This strike continued nearly twelve months, and the pointing being one of the first processes, before the strike was at an end almost all the needle-makers were out of work, and the manufacturers' stocks were sold off.

"The pointers began to use the fans with great reluctance, but they soon came to approve of the new system; as before the introduction of these fans the workmen were enveloped in dust, which prevented them having glass windows in their part of the mill—the light being admitted by holes with wooden lids over them. The fans are constructed with a kind of funnel (placed immediately behind the grindstone) which has a metal tube ex-

tending to a box at the bottom of the stone, in which the fan revolves, thereby producing a draught of air down the funnel, which takes off the particles of dust, leaving none to fly about the room. This has had an astonishing effect upon the pointers, as they are now greatly improved, and likely to become as respectable a body of men as any in the trade. If any fan does not now work properly, the men stop work until it is repaired."

Few visitors to the machine-room in the Crystal Palace but saw the needle-making machine of Mr. Abel Morrall, to whom we owe much for his important improvement in that branch of manufacture. The following is the official description of needle-making:—"A coil of steel wire is cut into lengths sufficient to make two needles; these lengths are collected into bundles, and straightened by a peculiar process. The grinder then takes a number of the pieces in his hand, and points them by causing them to rotate on a dry grindstone. They are now washed, then dried over a fire, and placed singly between two dies, which flatten the wire in the middle, and stamp the shapes of the heads of two needles with indentations for the eyes, and also to mark the place of separation. The wires thus prepared are taken to a hand-press, and by means of a double punch both eyes of the twin needles are made at one time. The next process is gone through by children: each child holds two wires in its hand on which it places about fifty double needles, to facilitate the process of filing, which is done by fastening the wired needles down on a strip of wood by means of steel springs, worked by a treadle under the foot of the workman, who moves a file over the needles until the projections caused by stamping are removed; they are now turned and the other side is filed, then placed in a kind of vice and the upper part of the double needles are moved backwards and forwards between the finger and thumb until they are broken in two. The tops of the heads are then filed round, and the roughness removed from the inside of the eye. The needles are next hardened by being ranged in quantities on iron plates and laced in a furnace until they are red-hot, when they are taken out and emptied into a copper containing oil or water, and then tempered by being placed over a slow fire and allowed to cool gradually. The crooked needles are now straightened by a small hammer, one at a time, on an anvil. They are then gathered together and mixed with oil, soft-soap, and emery powder, wrapped in loose harden, and placed in a kind of mangle, worked by mill power, to be scoured; they are often taken out, washed, and redressed. This process takes about a week, and when done the needles are washed in hot water and dried in sawdust. Winnowing and sorting follow. They are now spread out in a line on a piece of wood, the heads projecting over one side, under which is placed a red-hot iron to soften that part of the needle previous to the eyes being burnished, to prevent them cutting the thread. The points are then set and the needles polished, being held in the hand after the manner of pointing, and rotating on a wheel covered with prepared leather, which is called a buff. They are now counted, five at a time, wrapped in their well-known papers, labelled, and tied up, ten packets, of 25 needles, in a lot, for sale. About 100 millions of needles are made every week in the needle district, and the best qualities pass through upwards of seventy processes."



SCOURING THE NEEDLES.



BURNISHING THE NEEDLES.

There are at present upwards of ten thousand persons employed in England in this branch of manufacture.

Strange it seems that an instrument apparently so insignificant should call forth the exertions of so many, should help to afford the means of obtaining daily bread by honest, diligent industry to so great a number of men, women, and children; that passing from process to process, from hand to hand, the rough needle and the polished needle should engage the energies of so large a number of operatives: but such is the fact. And when the work is finished, and duly packed and labelled, and sold and bought and sold again, it begins afresh to afford employment, though to another class in society, and the tailor and the dressmaker are both alike indebted to the industrious needle-makers of Redditch.

THE GIRAFFE.



THE GIRAFFE AND YOUNG, AS SEEN IN THE ZOOLOGICAL GARDENS, REGENT'S PARK. DRAWN BY WEIR; ENGRAVED BY W. MEASOM.

The giraffe is one of the most extraordinary creatures in the animal kingdom. It is the tallest of quadrupeds, is ruminating, and chews the cud. Its favourite food is the leaf of an acacia, which grows in the country which it inhabits—the twigs of which are succulent. We need hardly say it feeds with ease upon the upper branches. It grazes sometimes, also, when grass is plenty, but not often, as the ground is too far away from its head to make the operation very agreeable. Linnæus considered the giraffe a *cervus*. But Linnæus was wrong; the structure of the horns, and the peculiar arrangement of the teeth prove it. It is now classed under the *genus camelopardis*—a genus which, by-the-by, it has altogether to itself, as it is the only animal of its kind. The head is the most beautiful part of the animal, it being like that of the deer; the eyes are full and brilliant, and so placed, that the animal can see both behind and before, without turning its head.

The young giraffe is the sixth male produced in the gardens by the adult female here represented. She was imported by the Society from Khordofan in 1836, and is now nearly eighteen years old. Two other males produced by this female are living

in the menagerie of the Society. They were born in 1844 and 1846. Another is living in the menagerie of the Zoological Society of Antwerp, to which place he was transferred in 1850, having been born in February, 1849. He promises to be fully equal in size and beauty to either of his brothers. The first fawn, born in 1839, died in the gardens soon after its birth; the second was given to the Zoological Society of Dublin, and died there after having grown to her full size.

The giraffe is found throughout Africa from Nubia and Senegal to the Cape. The acclimatisation of this species, as evinced by the continued reproduction in the Society's gardens, is most satisfactory evidence of the possibility of succeeding with animals of any species from more southern climates, under favourable circumstances as to building and general sanitary treatment.

The first giraffe which reached England alive, was presented to George IV., by Mehemet Ali in 1827. It was placed by his Majesty in his menagerie at Sandpit Gate, and lived but a very short time there. Giraffes have been imported into England, France, Germany, and Russia on various occasions since the expedition of M. Thibaut into Khordofan on account of the society in 1835. But in no instance have any of the animals so imported produced young, except in the possession of the Zoological Society. The present herd in the Regent's Park consists of the old female, whose portrait we have given; two younger females, presented to the society in 1849, by his Highness Ibrahim Pacha; two adult males and the fawn; in all three pairs. A spectacle unrivalled in Europe, and one which the traveller would have far to penetrate before he could see again, even in Africa.

The giraffe makes excellent venison. Although extremely active, in a wild state it will not hold out more than three miles before a well-mounted pursuer. Its gallop is performed in a perfectly different manner from that of any other animal of its class, the hind-legs being brought forward on the outside of the fore-legs at every stride. The long neck and raised withers of the giraffe enable it to browse on trees where branches are inaccessible to any other quadruped; and this operation is materially assisted by the peculiar organisation of the tongue, which is capable of great elongation and possesses surprising flexibility. The length of time during which the giraffe has existed in the Society's collection, with all the disadvantages of artificial treatment, and a climate as far removed from its native one as can possibly be imagined, indicates that the natural duration of life, in a wild state, if it escape the attacks of its numerous enemies, must extend over a very considerable period.

The collection of African animals now in possession of the Zoological Society, comprehends several other exceedingly beautiful species, of which illustrations will be given in future numbers of this work.

HISTORY OF BANKING.

In resuming our history of banking, we have to draw the attention of the reader to the system pursued in our own country. The Bank of England, the largest in the world, was projected by a Scotch gentlemen, named Patterson, in 1694. The original capital, which was all lent to the government, at 8 per cent. interest, was £1,200,000; and there was an allowance of £4,000 a year for management. The charter was renewed from time to time, and massive additions made to the capital. Until the year 1759 no notes were issued under £20. Then £10 notes were first put into circulation, and £5 notes in 1795. Subsequently £1 and £2 notes were issued; but, since the 5th of April, 1829, £5 is the smallest sum for which any English bank may send forth its notes payable to the bearer. In 1797 an act was passed—"The Restriction Act"—to prevent the Bank of England from making payments in gold, a measure rendered necessary by the financial operations of its creditor, the government, during the French war. The suspension of cash-payments was renewed from time to time down to 1816. At the end of 1813 the Bank of England notes in circulation were near £24,000,000, and the price of gold was £5 10s. an ounce. The depreciation of bank-paper was then more than 29 per cent. At the end of 1814, though the bank-issues amounted to upwards of £28,000,000, the price of gold had fallen nearly £1, and a great influx of the precious metal having resulted from the opening of the channels of commerce on the return of peace and confidence among the nations. In 1819 Peel's bill was passed for the gradual resumption of cash-payments. In May, 1821, bullion might be demanded in payment for notes, at the mint price of £3 17s. 0½d. per ounce, and the Bank commenced the payment of its notes in specie.

In August, 1833, an act was passed for renewing the charter of the Bank of England; and, by this act, its notes were made a legal tender, so that both it and its branches through the country were relieved from the expense and trouble of supplying gold whenever a run might be made upon them. The Bank of England acts as the agent of the government in the management of the National Debt, receiving and registering the stock from one public creditor to another, and making the quarterly payments of the dividends. Previous to the passing of the act of 1833, the Bank received from the public, in payment for this service, the sum of £248,000 per annum. By the act which renewed the charter in 1844, the sum was reduced to £180,000. The profits of this leviathan establishment are derived from discount on commercial bills, interest on exchequer bills, interest on the capital stock in the hands of government, the allowance for managing the public debt, interest on loans and mortgages, dividends on stock in the public funds; profit on purchases of bullion, &c. In 1832 the Bank maintained an establishment of nearly 1,000 officers, clerks, porters, and messengers: the number has since been, no doubt, considerably increased. In the same year the salaries of 940 persons employed at the Bank and its branches amounted to £211,903, or, on an average, £225 each; and 193 persons, principally superannuated clerks, received £31,243, or £161 each. Previous to 1844 the directors conducted the affairs of the Bank in secret; and, so important to their interest was secrecy esteemed, that the public creditors were content to take the word of the managers that their dividends were what they should be. The act of that year put an end to the mystery, and the *Gazette* of September 7th, 1844, contained the first statement of its accounts ever submitted to the public.

In the middle ages the Jews, whom persecution divested of real property in every part of Christendom, were the chief money dealers. They were so in England till the thirteenth century, during which a number of Italian merchants, named Lombards, settled in London, and gave their name to Lombard-street, and established there the trade of goldsmiths and money-dealing, for which it is distinguished at the present time. At first the goldsmiths restricted their trade in money to the purchase and sale of foreign coin, to which they afterwards added the practice of lending and borrowing money. They lent chiefly to the king on the security of the taxes. To be enabled to do this, they borrowed from private individuals, and their receipts for the deposits committed to them circulated like the promissory notes of a modern bank. These Lombard money-merchants charged high interest, sometimes as much as 20 per cent. Rich people had been accustomed to deposit their money in the Tower for security; but in the year 1640 that honest king Charles I. took possession of £200,000 thus deposited, and applied it to his own use by "by Divine right." The dishonesty of the king led to a large extension of business in Lombard-street, and about this time the trade of banking properly commenced in London. In 1672 King Charles II. owed the bankers £1,328,526, at 8 per cent.; but, like his father, asserting his divine right to be above all human obligations, he shut up the Exchequer, and refused for a time to pay either principal or interest. He was afterwards obliged to pay 6 per cent. interest, but the principal was not discharged till forty years afterwards.

Private banks rapidly multiplied in London. In 1793 they numbered 56. There are three banking-houses still carrying on business which were established before the Bank of England. These are Child's, established in 1663; Hoare's, in 1680; and Snow's in 1685. The private banks of London do not issue notes. In 1770 they erected an establishment, called the *Clearing-house*, situated now at the back of the Guardian Insurance Office, Lombard-street. The checks and bills of exchange for which money is received and paid, are taken from each of the banks to the Clearing-house several times in the day, and those drawn on one banker are cancelled by those which he holds

on others. The Clearing-house is fitted up with desks, one for each of the 27 clearing-bankers, whose names, taking the first of each firm, are arranged in alphabetical order, over each desk, as follow:—

Barclay	Glyn	Rogers
Barnard	Hanbury	Smith
Barnett	Hankey	Spooner
Bosanquet	Jones	Stevenson
Brown	Lubbock	Stone
Curries	Masterman	Veres
Denison	Prescott	Weston
Dorrien	Price	Williams
Fuller	Roberts	Willis

Mr. Tate, who some years ago published an authentic account of the operations of this clearing system, says,—"The rapidity with which the last charges are required to be entered, and the bustle which is created by their swift distribution through the room, are difficult to be conceived. It is, then, on the point of striking four, and on days of heavy business, that the beauty of the alphabetical arrangement of the clearer's desk is to be seen. All the distributers are moving the same way round the room, with no further interference than may arise from the more active pressing upon or outstripping the slower of their fellow-assistants. With equal celerity are their last credits entered by the clearers. A minute or two having passed, all the noise has ceased. The deputy clearers have left with the last charges on their houses; the clearers are silently occupied in casting up the amounts in their books, balancing them, and entering the differences in their balance-sheets, until, at length, announcements begin to be heard of the probable amounts to be received or paid, as a preparation for the final settlement. The four o'clock balances having been entered in the balance-sheet, each clearer goes round to check and mark off his accounts with the rest—with, 'I charge you,' or 'I credit you,' according as the balance is in his favour or against him."

Country banks began to increase after the American war. In 1844, according to the "Banker's Magazine," the number of joint-stock banks in the United Kingdom was as follows:—England and Wales 106; Scotland 20; Ireland 10; and there were besides 10 Joint-Stock Colonial banks in London.

The Bank of Ireland was established in 1783 with the same privileges as those granted to the Bank of England by the Act of 1708. It began with a capital of £600,000, lent to government at 4 per cent. In 1809 another million was added to the capital, and also lent to the government at 5 per cent. In 1821 the capital was further augmented to three millions sterling. Its total circulation in 1844 was £3,618,600. The bullion in its coffers was £1,037,100. Its total securities amounted to £7,250,700,—consisting of £4,226,500 public securities; £1,844,400 notes and bills discounted; and £1,179,800 of other securities. The total deposits were £3,555,300, of which £2,484,100 were private, and £1,071,200 public securities. In 1804 there were 50 private banks in operation in Ireland, all of which were banks of issue. In consequence of the suspension of cash payments by the Bank of England, paper money increased in Ireland to a ruinous extent. It was issued not only by banks but by private merchants and shopkeepers, whose number at one time was 295, and the sums on the notes sometimes as low as 6d. and 3d. each. The consequence was forgeries and failures to an enormous extent. Of the 50 banks only 19 remained in 1812, and of these 19 eleven gave way in 1820. A legal remedy was applied in 1821, when an act was passed regulating joint-stock banks, some of which, especially the Provincial Bank of Ireland, are in a most flourishing state. The Bank of Ireland has branches in all the principal towns. Belfast has four or five banking companies of its own, with branches all over the province of Ulster. In Ireland and Scotland there is no restriction as to the value of the notes, and £1 notes abound.

Scotland has three incorporated public banks,—the Bank of Scotland, the Royal Bank of Scotland, and the British Linen Company; but none of them enjoy the exclusive privileges of the Banks of England and Ireland. Besides these three chartered establishments, there were in 1844 twenty joint-stock banks in Scotland, whose system has been most beneficial to the trade of the country. They grant credit to a certain amount, to any individual who can procure two securities of undoubted solvency to go bail for the payment with interest; but they require that this credit should be frequently operated upon. They also receive and pay interest upon the smallest deposits, which accounts for the small number of savings banks in Scotland. The Lords committee on Scotch banks in 1826 bore the following highly honourable testimony to these establishments:—"The banks of Scotland, whether chartered or joint-stock companies, or private establishments, have for more than a century exhibited a stability which the committee believe to be unexampled in the history of banking; they supported themselves from 1797 to 1812 without any protection from the restrictions by which the Bank of England and that of Ireland were relieved from cash payments; there was little demand for gold during the late embarrassments in the circulation; and in the whole period of their establishment there are not more than two or three instances of bankruptcy; and, as during the whole of this period a large portion of their issues consisted almost entirely of notes not exceeding £1 or £1 1s., there is the strongest reason for concluding, that as far as respects the banks of Scotland, the issue of paper of that description has been found compatible with the highest degree of solidity."

In August, 1844, the bank circulation of the United Kingdom was as follows:—

ENGLAND.	
Bank of England	£21,448,000
Private Banks	4,624,179
Joint-Stock Banks	3,340,326
	£29,412,505
IRELAND.	
Bank of Ireland	£3,440,700
Private and Joint-Stock Banks	1,974,284
	£5,414,984
SCOTLAND.	
Chartered, Private, and Joint-Stock Banks	£2,903,322
Total	£37,730,811

Since then, as commerce has expanded, the circulation has increased in proportion; but not so fast as the bullion poured forth from the mines of California and Australia. At the recent London election, Mr. Hankey, the Governor of the Bank of England, in proposing Lord John Russell, said that there was bullion enough in its vaults "to cover with a very nice sheathing of gold an ordinary-sized road all round the equator, and he was not very sure that they had not enough to gild the whole world!"

The banking system in the United States of America has been violently affected by the go-a-head character of the people. Their restless enterprise is such, that deposits are never allowed to remain long enough in the bank to bear interest. All capital is kept stirring by the hand of speculation. In 1839, when the United States Bank of Pennsylvania failed, there were 850 banks in the Union. Of these, 343 entirely suspended payments; 62 suspended in part; 56 failed, or were discontinued; 48 of those who had suspended returned payments on January, 1840; and 498 firmly withstood the shock. Many of the fallen banks, however, did not deserve the name, having each "but one salaried officer—a cashier—whose annual stipend ranged from 300 to 600 dollars." "Indeed," says Professor Tucker, "many of its bankers can be regarded as little more than cashiers and bookkeepers for particular manufactories." Banking throughout the union is now established by law, upon a safer system. "With one solitary exception, that of the late Mr. Girard, in Philadelphia, all the private banks established in the United States are Joint-Stock Companies, incorporated by law with fixed capitals, to the extent of which only, the stock-holders, are in most cases responsible. The business of all consists in receiving deposits, discounting mercantile bills, lending money on security, and issuing notes." The law, in several of the States, requires that a certain proportion of the capital—generally 50 per cent., should be paid up in gold or silver. But Professor Tucker, writing in 1839, says that the preliminary condition was evaded "by means of specie temporarily borrowed from other banks for the purpose,"* as Irish Protestant schoolmasters borrowed Roman Catholic children for the day of inspection!

* See Knight's Political Dictionary. Verb. "Bank."

PALM-OIL.

Beyond Cape Verd the aspect of the African coast changes suddenly. To a low, sandy coast, almost everywhere barren, arid, and monotonous, losing itself at evening in the deep red of the sky, succeed rugged heights, sometimes abrupt, but which almost always ascend from the sea towards the interior in gentle slopes. The eye then wanders over an amphitheatre of delightful verdure, and seems to lose itself in endless shades; and the vigour displayed by the surrounding vegetation often astonishes even those who are already familiar with the luxuriant growth of the tropics. Amongst the plants which flourish in these splendid forests, not the least remarkable is the *Elais guineensis*, a splendid palm-tree, thirty-five or forty feet in height, and called by the negroes "their friend." And in truth it is their friend, for no human being could entitle himself to that appellation by half the favours which it bestows. The natives not only draw wine from it, but has some very extensive soap manufactories, which consume immense quantities of the oil in the yellow soap. In 1831 one of these establishments produced every week 120,000 lb. of soap.

The United States have pursued this trade almost with as much assiduity as the English. But very little palm-oil is imported into France, notwithstanding her large manufactures of soap. A cheaper and better sort of soap is produced with the palm-oil than the French can possibly make even at Marseilles, and it has also the valuable property of dissolving in sea-water, thus enabling sailors to economise the fresh water on long voyages. This the French soap does not possess.

The fruit of the tree is about the size of a pigeon's egg, with its outer fleshy covering of a golden-yellow colour. The oil is obtained by bruising the fleshy part of the fruit, and subjecting the bruised paste to boiling water in wooden mortars. An oil of



NEGROES MAKING PALM-OIL.

oil; make fishing-lines from it, as well as huts and baskets; it affords them enormous fruit containing an abundance of juice; seed, tow, and wood for the construction of their huts. Up to the present time, the oil, however, is the only product which has been the subject of extensive commerce. It has the consistence of butter, is orange-coloured, and strongly odorous.

The English were the first to use palm-oil in the manufacture of soap; but it is impossible to point out the precise date when it first became an article of importation. At the period of the abolition of the slave-trade, in 1818, between one and two hundred tons only were imported annually. The value of the palm-oil imported in 1834 was nearly £450,000, and the tonnage of the vessels employed in the trade reached £15,000. The quantity imported in 1849 was 493,331 cwts.; in 1851, 448,589 cwts.; and ten-twelfths of all this was brought to Liverpool alone, which

an orange-yellow colour separates, which cools to the consistence o butter, and has, when fresh, the smell of violets. When imported into England, palm-oil is used in soap-making, candle-making, perfumery, and medicine. Although liquid in the warm climate of Africa, it is solid here; and the mode employed fo extracting it from the casks, is to place the cask over a trough with the bunghole downwards, and to pass a steampipe into it, by which means the palm-oil is brought into a liquid state. It is used on the railways to oil the wheels and breaks of the carriages.

There is scarcely a species of palm in which some useful property is not to be found. The cocoa-nut, the date, and others are valued for their fruit; the fan palm and many more for their foliage, whose hardness and durability render it an excellent material for thatching; the sweet juice of the palmyra, wher

fermented, yields wine; the centre of the sago palm abounds in the nutritive starch so well known to invalids and pudding-eaters; the trunk of the *Iriartea*, or *Ceroxylon*, exudes a valuable vegetable wax; oil is expressed in abundance from the oil palm, as we have already stated; an astringent matter resembling dragon's blood is produced by the *Calamus Draco*; many of the species contain within their leaves a kind of fibrous matter so hard and tough that it is manufactured into cordage; and finally they are in some cases valued for their strength, and used as timber, or for their elasticity or their flexibility, as in the cane palm.*

Both volatile and fixed oils are very extensively diffused through vegetables—the former in almost every part of a plant, except the cotyledons of the seed, and the latter in the seeds chiefly, but also in their fleshy covering, as in the olive, some palms, and other plants. Some families of plants abound especially in fixed oils. Among the *Cruciferæ*, are mustard-seed, rape-seed, and colza-seed oils, with other species, especially cultivated in Europe, India, and Japan, of which some have of late years been imported into this country. Several of the family of the *Compositæ* secrete oil in quantities large enough to render it desirable to cultivate them for this purpose alone, as the sunflower and the Jerusalem artichoke.

CHATEAUBRIAND.



CARBONNEAU.

Previous to the appearance of the *Mémoires d'Outretombe*,† little was known of Chateaubriand's life beyond a few incidents barren of interest, which were furnished by his literary works. François-René de Chateaubriand was born on the 4th of September, 1768, at St. Malo, in a house in the Rue des Juifs, now used as an inn. He was intrusted to the care of a nurse of the village of Plancouet, who in consequence of the extreme delicacy of his health dedicated him to Our Lady of Nazareth, vowing to clothe him in blue and white, until he should attain the age of seven years. Upon his return to his father's house, he was chilled by the sombre silence and grave formality which pervaded it, caused by the stern exercise of that exorbitant power which, under the old *régime*, devolved upon the heads of every family amongst the provincial noblesse. The Chateaubriand family was at this time composed of an elder brother, four sisters, and Monsieur and Madame de Chateaubriand. M. de Chateaubriand had resided for a long time in the French colonies, from which he had at this period but recently returned, after having accumulated a considerable fortune. The darling object of his life was the restoration of the glories of his family name, which had somewhat fallen into decay; and for this

* Knight's "Cyclopædia of the Industry of all Nations."

† The *Mémoires d'Outretombe* were written, as the title indicates, with the view of their being published after his death. At the pressing solicitations of his friends he was induced, however, to give one or two volumes to the world during his lifetime. The whole has, of course, since appeared.

purpose he had bought his paternal manor of Combourg, which had many years before passed into the hands of strangers. He now retired to live upon it like a castellan of the middle ages. He was haughty and reserved amongst the *gentilshommes* at the meetings of the states of Bretagne, stern and merciless towards his vassals at Combourg, and taciturn and despotic amongst the members of his own family. Madame de Chateaubriand, fond of society and of literature, kind-hearted, and full of sympathy with grievance and misfortune of every sort, however trifling, was completely stifled, so to speak, in the thick atmosphere of pride and hauteur which surrounded her husband. Her life at last became little else than a dreamy and sad silence, interrupted only by her sighs.

Entirely abandoned, as was the custom in those great French houses, to the care of the servants, and by them left in vagabond liberty upon the streets, Chateaubriand passed the first years of his life in playing with the young blackguards of Saint Malo and Combourg; fighting every day, now conquering and then conquered—but always scratched, bruised, and dirty. His only guide and instructor was Gesril, who renewed at Quiberon the heroism of Regulus. After the surrender of the royalist army, the English vessels keeping up their fire, Gesril, who had been taken prisoner by the republicans, swam out to the ships, to tell them of what had occurred, and bid them cease firing. They cast out a rope to haul him on board, but he refused to lay hold of it, exclaiming, "It is impossible, I am a prisoner on parole," and returned to be shot.

M. de Chateaubriand intended his son for the royal navy, and therefore sent him to the college of Dol to study mathematics. His progress was rapid, but even at this early age the Breton spirit of independence which never abandoned him, began to show itself. He was about to be whipped for some trifling fault, when he cast himself at the feet of his tutor, the Abbé Le Prince, imploring him to spare him so great a degradation, and change the punishment. The Abbé refused, and advanced towards his victim lash in hand. Finding escape hopeless, young Chateaubriand made a vigorous resistance, giving blow for blow, and shouting lustily by way of animating his courage the well-known line of Virgil, "*Macte animo, generose puer!*" The Abbé was completely disconcerted, and gave up the attempt in despair.

From the college of Dol, Chateaubriand passed to that of Rennes, where he again met with his old companion Gesril, as well as Moreau, who afterwards acquired so much glory, and stained it by so great treason. A short time afterwards at the college of Dinan he found his compatriot Broussais, who became so famous as a physician. But previous to this, Chateaubriand had gone to Brest for the purpose of entering the *Ecole des Gardes de Pavillon*. He was very soon disgusted with it, and giving way to the capricious humour which was one of his greatest infirmities through life, he returned to Combourg, there to commence that dreamy and solitary sojourn which prepared him for the composition of *René*. In the *Mémoires d'Outretombe*, he has drawn an admirable picture of this wild youth of his, abandoning itself to all the fantasies of complete isolation, and all the vagaries of an ardent imagination. The monotonous regularity which reigned in the château was in strange contrast with the young man's glowing aspirations. After describing to us his long wanderings in the woods, his day-dreams in the heathery *landes*, or his fits of abstraction on the banks of the streams, he draws aside the curtain, and reverts to his home life, that home which his father's moroseness had made like a sepulchre. "Supper ended," says he, "my mother threw herself sighing upon the sofa, covered with flaming red Siamese cotton. A round table was then placed before her, and on it a wax candle. I seated myself beside the fire with Lucile" (his sister). "The servants took away the cloth and retired. My father then commenced a promenade which ceased only at bedtime. He wore a long rateen cloak, or rather a sort of coat that I have never seen on any one but himself. His bald head was covered with a white cap, always placed straightly and upright. When in walking up and down he got to some distance from the fire, the great hall being but partially lighted by the single candle, he was no longer visible, though he was still heard pacing in the darkness; then he returned slowly into the light, emerging little by little from obscurity like a spectre, with his white coat, his white cap, his gaunt tall figure. Lucile and I exchanged a few words when he was at the other end of the hall, and were silent again when he approached us. He said to us in passing, 'What were you talking about?' Seized with terror we made no reply, and he continued his walk. During the remainder of the evening, nothing was to be heard but the sound of his measured tread, my mother's sighs, and the moaning of the wind outside."

This continual repression, combined with solitude and youthful disappointment, led Chateaubriand to conceive the idea of committing suicide. He tried to kill himself, but a lucky chance prevented the gun from going off. Long illness was at length brought on by these fits of morbid melancholy. Upon his recovery, it was determined by his father that he should enter the church. He at once evinced his decided repugnance to such a career, and his father at last obtained for him a sous-lieutenancy in the regiment of Navarre, and sent him off immediately to Cambrai. He passed through Paris, in which one of his brothers and one of his sisters were living, and his recital of the impressions made upon his mind by the first sight of the great city reminds us of what Jean Jacques Rousseau has written under the same circumstances.

He did not remain long with his regiment. The death of his father called him back to Bretagne, from which, however, he was soon taken away by his elder brother, who wished to present him at court. What a gentleman of the ancient *régime* would call a terrible misfortune here befel him. When out hunting with the royal party, he arrived at the death of the roebuck before the king. This was a great indiscretion, but his majesty was, however, graciously pleased to forgive it. But all his brother's solicitations were not sufficient to induce him to return to Versailles. "More than once," says he, "I went as far as Sevres, but there my heart failed me and I turned back; so that the whole result of my visit to Paris was, that by dint of intrigues and cares I attained to the glory of inserting an idyl in the *Almanach des Muses*." These literary tendencies led him to seek the acquaintance of men of letters. He was often in the society of Sales Chamfort, Flins, Ginguené, and Lehrun; but with none did he become so intimate as with Malesherbes, who shortly afterwards induced him to take the trip to America.

He paid frequent visits to Bretagne during the years 1787 and 1788, and found himself mixed up in the quarrels which were then breaking out between the nobles and the bourgeoisie. Returning to Paris he witnessed the taking of the Bastile, the massacre of Foulon and Berthier, and the terrible events of the 5th of October. He dined with Miraheau, who talked the whole time of the affairs of the court; and he had an interview with Robespierre in the National Assembly.

At this period, yielding to the persuasions of Malesherbes, he set out for America, with the intention of attempting to discover the north-west passage. He took with him all the money he could scrape together, and a letter of introduction to Washington.

He visited Baltimore and Philadelphia, and dined with Washington. The parallel he has drawn between the character of the founder of American independence and that of the Emperor Napoleon has a sober grandeur and austere good sense about it, which seems to flow from the peculiar turn of his genius. "Washington," says he, "was the representative of the desires, ideas, knowledge and opinions of his age; he assisted instead of opposing the march of intellect. He wished that which he ought to wish, the very thing to which he was called. Hence the coherence and perpetuity of his work. He is not a very striking man, simply because his proportions are just, and because his existence is confounded with that of his country; his glory is the patrimony of civilisation; his renown raises itself aloft like one of those public sanctuaries from which flows a plentiful and inexhaustible fountain." He then set out for New York and Boston. He was not slow in ascertaining that to have any chance of success in discovering the north-west passage, he should make himself acquainted with the languages of the tribes of red Indians, and with the manners and customs of the backwoodsmen. He therefore determined upon proceeding to Niagara. This part of the *Mémoires d'Outretombe* is full of splendid descriptions, of poetic incidents and anecdotes, some of which remind us of Sterne, though possessing more

colouring and amplitude. In a forest near Mohawk Chateaubriand met with a little curled, powdered Frenchman, dressed in a green coat, drugget waistcoat, and frills and shirt of muslin, teaching a tribe of Iroquois Indians to dance *Madelon Friquet!* M. Violet was dancing-master to the Indians! In speaking of them he always said, "*Ces messsieurs sauvages, et ces dames sauvages*" (These gentleman savages, and lady savages). Holding his little violin between his chin and his breast, he would cry, "To your places!" and forthwith the whole band would begin to jump about like a troop of devils.

After having visited Lake Onondagas and the waterfall of Niagara, he heard, while sailing on the Ohio, of the arrest of Louis XIV. at Varennes, and determined upon returning to France, which he did, but was shipwrecked on the voyage. He rejoined his mother at St. Malo, and while there married Mdlle. de Savigne. One of the lady's maternal uncles, M. de Vauvert, who was an ardent democrat, impugned the validity of the marriage, on the ground that it was made without his consent, and by a nonjuring priest, while the bride was yet a minor. Chateaubriand was, in consequence, prosecuted for abduction and violation of the law, but the tribunal pronounced the marriage legitimate.

This affair once settled, he prepared to join the army of the *émigrés*. In passing through Paris, he made the acquaintance of the Abbé Barthélémy, the author of the "Travels of Anacharsis," and of St. Ange, the translator of Ovid, a versifier of some talent, but who, according to Chateaubriand, "was but little removed from a fool."

He succeeded in borrowing two millions of francs, to enable him to quit France. On his way he was seduced by a friend into entering a gambling-house, and when he came out he had but five hundred, which he forgot, in a pocket-book on the seat of a fiacre. After two days' searching, they were at length recovered, and on the 15th of July he set out for Lille, and soon after joined the army of the Princes at Treves. At first the *émigrés* were unwilling to admit him into their number. With the ridiculous vanity and presumption which characterised all their proceedings, they declared that he had arrived too late, that the victory was gained, that the revolutionary army had deserted *en masse*, and that before a month the royalists would be in Paris! At last, however, through the intercession of his cousin Armand, they graciously permitted him to take part in their assumed triumph.

The emigrant army was commanded by the Prince of Condé, and was composed of gentlemen of every age and every province, who served as private soldiers. The old officers of the navy enlisted in the cavalry, and those young men belonging to the bourgeoisie, or *tiers état*, who followed the emigration, formed a distinct corps, and wore a different uniform, as the gentlemen by birth, with almost incredible infatuation, could not, even in their present deplorable position, suffer a plebeian to serve amongst them, thus perpetuating one of those odious distinctions by which the revolution had, in a great measure, been caused. "Men attached to the same cause," says Chateaubriand, "exposed to the same dangers, were thus set apart for the scorn and contempt of the *gentilshommes;* but the true heroes were these plebeian soldiers, in whose self-sacrifice not a particle of personal interest was mingled."

The emigrant army was wretchedly equipped. Chateaubriand made the whole campaign with a musket, the hammer of which could not be pulled down either by the trigger or in any other way. The siege of Thionville failed; the royalist army entered Verdun, but in a few days had to evacuate it in confusion. A panic seized upon all, and great numbers were cut off by disease. Chateaubriand was anxious to reach Ostend, where he hoped to be able to embark for Jersey, that he might there join the emigrants from Bretagne. Already wounded in the thigh, and wasted by fever, he was attacked by confluent smallpox, which grew better or worse, according to the state of the atmosphere. It was while in this state that he commenced a journey of two hundred leagues on foot, and with eighteen francs in his pocket! By riding in the peasants' carts, and sleeping in barns, he at length reached Flamizoul and Bellevue. There his illness increased, and he lay dying in a ditch. The drivers of some waggons belonging to the Prince de Ligne raised him, and carried him to Namur. On getting down at the gate of the town, the soldiers on guard, taking pity on his forlorn condition, gave him a morsel of bread and some brandy. He was able to walk along the streets only by supporting himself against the walls of the houses. The women often came out and offered their arms to assist him. "He is wounded," said some; "and he has the smallpox," said others; and instantly hurried their children away. They wished to take him to an hospital, but he refused, and again mounting a waggon, was conveyed to Brussels. On his arrival all the hotel and inn keepers refused to receive him. "My hair," says he, "hung in confused masses over my face, which was already masked by my beard and moustachios. I had a wisp of hay tied around my thigh; over my tattered uniform I wore the woollen covering of the women of Namur, fastened around my neck like a cloak. The mendicant in the Odyssey was more insolent, but certainly not as poor as I."

At length he met with his brother, the Count de Chateaubriand, who procured lodgings for him, and sent him a physician, but he would not wait to be cured. He embarked at Ostend with other companions of his misfortune, in a small vessel, and lay in the hold upon the sand and pebbles, which served as ballast. On arriving at Guernsey all thought he was about to breathe his last. The captain had him carried ashore, and seated on the quay with his back to a wall, and his face to the sea. The wife of an English pilot, who chanced to pass by, was touched with pity, brought him to her house, and nursed him with the tenderest care. "On the following day," says he, "I again embarked, my hostess almost wept in parting with her patient. Women have a heavenly sympathy with misfortune. My fair and beautiful guardian, who greatly resembled the figures in old English engravings, pressed my swollen and burning hands in her own fresh and delicate fingers; I was ashamed to bring so much that was uncomely so close to such charms."

At length he reached Jersey, where his uncle Bedée was residing, into whose house he was received and taken care of. But "chill penury" followed him here also. He was unwilling to remain a burden upon an exiled family, whose own resources were very limited, and he therefore set out for London when but half recovered, with thirty louis in his pocket, which he had received from his family in Bretagne.

He found in London a colony of emigrants who lived upon their wits, making millinery, retailing coals, and teaching French, which many of them did not understand correctly themselves. Pelletier, one of the principal editors of the *Acts of the Apostles*, obtained some employment for him in translating, and a publisher for the *Essai Historique*, the idea of which he had entertained for some time. But these helps were but of temporary service. He lodged with Hingart, ancient counsellor of the parliament of Bretagne—then as badly off as himself. In spite of the closest economy, often entailing severe sufferings from hunger, their last shilling soon disappeared. Chateaubriand, who wrote this part of his memoirs, whilst ambassador in London in 1822, states that he lived for five days without any other sustenance than a little *eau suerée*, warm, and a penny loaf. "Hunger devoured me," says he; "I was burning; I slept none; I sucked pieces of linen moistened in water, and chewed grass, and paper. When I passed by a baker's shop my torments were horrible. I remained for two hours, one stormy winter's evening, standing before an Italian warehouse, devouring in imagination the dried fruit, smoked hams, &c. I could have eaten not only the edibles, but the boxes, baskets, and all."

On the morning of the fifth day, on returning to his lodgings, half dead with hunger, he found his friend Hingart delirious, having stabbed himself in the breast with a penknife. Until then he had refused the alms which the British Government offered to the refugees, but he now yielded, and wrote to M. Barentin. The friends of Hingart, on being informed of his deplorable state, came to his assistance, and almost at the same moment forty écus (£8) arrived from Bretagne. Chateaubriand "thought he saw before him all the gold of Peru."

He now resumed his labour at the *Essai Historique*, in a little attic looking out upon a graveyard, where he was soon after joined by his cousin La Bouëtardais. "La Bouëtardais was, as



ILLUSTRATION OF THE "MEMOIRES D'OUTRETOMBE." DESIGNED BY TONY JOHANNOT.

well as Hingart, a counsellor of the parliament of Bretagne. He had not a handkerchief to wrap around his head, but he had deserted with his *arms* and *baggage*,—that is to say, he had carried off his square cap, and his red robe, and he slept under the purple at my side. Facetious, a good musician, and possessing a fine voice, whenever he was not sleeping, he sat half-dressed on his folding bed, put on his square cap, and sang old songs, accompanying them with a guitar which had only three strings."

This gaiety of the refugees was supported by their delusions. "All the republican victories," says Chateaubriand, "were by them transformed into defeats, and if any one ventured to express his doubts of an immediate restoration of the monarchy, he was looked upon as a jacobin." Two old bishops, both on the brink of the grave, were one morning in spring walking in St. James's Park, "*Monseigneur*," said one, "*croyez vous que nous soyons en France au mois de Juin?*" (Monseigneur, do you think we shall be in France in the month of June?) "*Mais, Monseigneur*," replied the other, "*après avoir mûrement réfléchi, je n'y vois pas d'inconvénient.*" (Well, Monseigneur, after mature consideration, I do not see that it will put us to any great inconvenience, if we do.) This anecdote well exemplifies the spirit which at this period pervaded the whole fraternity.

little insolent, a little too gay, too turbulent, but we are no sooner gone than they regret us. Lively, witty, and intelligent, the French soldier takes part in all the occupations of the family at whose house he is billeted; he brings water from the well, as Moses for the daughters of Madian; chases away the shepherds, leads the lambs to the washhouse, chops wood, makes the fire, watches the pots and saucepans boiling, carries the baby in his arms or rocks him in his cradle. His good humour and activity put life into everybody; they at last begin to regard him as a conscript of the family. Is the drum beating? He runs to his musket, leaves the daughters of his host weeping at the door, and leaves the cottage, on which he will never again spend a thought until he enters the *Invalides*."

It was at Rome that Chateaubriand had to mourn over the



CHATEAUBRIAND'S TOMB AT ST. MALO.

After the downfall of the jacobins, the *émigrés* commenced to return into France; Chateaubriand was amongst the first to do so. He now lived upon terms of great intimacy with MM. de Fontanes, de Bonald, Molé, Chenedolle, Pasquier, Joubert, and Madame de Beaumont, daughter of the Count de Montmorin. He published *Atala*, which instantly met with great success. The *Génie du Christianisme*, which appeared the following year, at once placed him in the first rank amongst the authors of the day. Bonaparte, then first consul, expressed a wish to see him, and appointed him secretary to the embassy at Rome. He found the plains of Lombardy occupied by the French army, who were on very amicable terms with the people. "We are singular enemies," said he, on that occasion; "they found us at first a

death of Madame de Beaumont, and a short time afterwards his sister Lucile, that gentle sister, with whose society all the dearest and tenderest recollections of his early life were inseparably linked, was taken away from him also.

Upon his return to Paris he was appointed French minister at Valois, and was preparing to set out to his post when he heard of the murder of the Duke d'Enghien, shot in the ditch of Vincennes. He instantly sent in his resignation. Thus restored to private life, he made excursions from time to time, in Auvergne, to Mont Blanc, Lyons, and at last he decided upon the journey to the east, of which he gives an account in the *Itinéraire de Paris à Jerusalem*. Upon his return to France he became proprietor of the *Mercure*, which was suppressed, in consequence of the publi-

cation of an article containing political allusions. It was at this period (1807) that he purchased a snug retreat in the Vallée aux Loups, to which he retired to labour at the *Martyrs*. This appeared in 1809, and was but coldly received. In the mean time, the death of Joseph Chénier left a place vacant in the French Academy. Chateaubriand presented himself, and was elected, but the discourse which he delivered displeased Napoleon, and was in consequence never published. The restoration put an end to the cruel persecutions to which Chateaubriand was from that time subjected. His political career commenced by the publication of a brochure, entitled *Bonaparte et les Bourbons*. Being obliged to fly during the Hundred Days, he followed Louis XVIII. to Ghent, who appointed him Minister of the Interior *ad interim*. "My correspondence with the departments," says he, "gave me no great trouble. I got over easily my correspondence with the prefects and sous-prefects, maires, and adjoints of our good towns, of the inner side of our frontiers; I did not make many repairs on the roads and I let the bells fall."

At the second restoration Chateaubriand was appointed ambassador, first to Vienna, and then to London. He was also sent as plenipotentiary to the congress of Verona, and becoming prime minister on his return, decided upon the Spanish expedition. He then retired into private life, and fixed his residence at Neufchâtel, in Switzerland. Some political pamphlets, articles in the *Conservateur* and the *Journal des Débats*, and his speeches in the Chamber of Peers, occupied his attention during this period. He was a member of the committee appointed to support the Greek insurrection, and he lent it all the aid in his power. Some time afterwards he was sent as French ambassador to Rome, but the change of ministry caused him to give in his resignation. After the revolution of July he resigned all his places, left the Chamber of Peers, and never again appeared in public. His principal labour now was superintending the publication of a complete edition of his works, for which he received 550,000 francs. On returning from a voyage to Dieppe, in 1847, such alarming symptoms of disease manifested themselves as left no room to doubt that his death was near at hand. But he lived to see the government of France once more republican, and it was not till the 4th of July, 1848, that he died at his house in the Rue de Bac. An immense concourse attended his funeral, and M. Patin, a member of the Academy, delivered a funeral oration.

One of the drawings which accompany our article, by the graceful pencil of an artist now no more, may be considered a poetic *résumé*, showing us the author of *René*, while still a child, being dedicated to the Virgin by his nurse; then a boy lying on the seashore and watching the halcyons winging their way over the stormy waters; then a young man exchanging literary confidences with Lucille, that "sweet sister," who in all the changes of his chequered life was still his good angel; and last of all his lonely tomb* on the summit of a high rock at St. Malo, where the "sad sea waves" beat an everlasting dirge around the remains of the most versatile genius of his age—courtier, scholar, soldier, poet, orator, and statesman.

Chateaubriand was one of those fine characters which arise in the midst of great social revolutions to purify the moral atmosphere and soothe the angry passions which the breaking up of the old order of things is sure to kindle. He was the last of that race of chivalrous men who appeared in various stages of the French revolution, who knew how to unite a love of order and a love of liberty, and who could remain faithful to the old traditions of the monarchy, without forgetting or despising the rights of the body of the people. The dream of Chateaubriand's life was an alliance of constitutionalism and legitimacy. He never forgot the lessons of his early youth, that the first duty of a Breton gentleman was fidelity to his king; but he must have learned long before his death the bitter truth, that the wretched Bourbons could never be the kings of a free people. He strove to make them so, as did many others of less ability, but in vain. His political labours are therefore scarce worth recording; but in his literary works he will live for ever.

* The tomb was cut in the solid rock by his orders some years before his death.

POPULAR ERRORS, PREJUDICES, AND SUPERSTITIONS.

CHAPTER IV.

We intend devoting this chapter to errors respecting fabulous animals; not, however, to go into a detailed account of all those various monstrosities known only to the science of heraldry. Amongst fabulous animals we do not intend to enumerate the wyverns, griffins, martlets, sea-horses, &c., which are to be seen in coats-of-arms; neither is it our intention to describe the pegasus, or flying-horse, the centaurs—half men, half horses—or the minotaurs of the old classic mythology; nor the roc, that gigantic bird who could carry away elephants in his claws, as set forth by the renowned voyager, Sinbad the sailor. All these are universally acknowledged as being mere creations of the fancy. But there are others which, though we would fain hope the spread of knowledge has by this time consigned them to the realms of fiction, have been written of and believed in not only by poets and romancists, but by philosophers and divines themselves.

We will begin with the phœnix. Now, though we do not mean to say that any one now believes in the existence of the phœnix, it will not be uninteresting if we notice what has formerly been written and believed concerning this *rara avis in terris*. We will begin with the opinions expressed of the phœnix by a celebrated historian of antiquity. We allude to Tacitus. Living in an age which was far from possessing the fault of too much credulity (the first century of the Christian era), and himself a careful examiner into the truth of things, Tacitus, nevertheless, in the sixth book of his "Annals" seriously assures us that the phœnix appeared in Egypt during the consulate of Paulus Fabius and Lucius Vitellius; and he spoke without the least shadow of a doubt of the bird's periodical return. But we have a more detailed and positive account of the phœnix. Solinus, in his work on natural history, entitled "Polyhistor," speaks of a phœnix that was captured in Egypt and taken to Rome, where it was publicly exhibited, and a written statement of the fact drawn up and deposited in the archives of the republic. But he is even more positive and precise still, for he gives a full description of the bird. He says, "It is as large as an eagle, its head is ornamented with feathers rising up in the form of a cone, its throat is surrounded with tufts of feathers, and its neck shines like gold; the rest of its body is purple, except the tail, which is sky-blue mingled with rose-colour." After so many details how can the existence of the phœnix be doubted? However, we have yet another most respectable authority to quote by way of corroboration. It is that of a worthy father of the church—of no other than St. Clement of Alexandria. In one of his epistles to the Corinthians, he says, by way of argument, to prove the resurrection of the human race, "Behold, there exists in Arabia a bird, the only one of its race—he is called the phœnix—he lives a hundred years, and when near death he proceeds to his own embalming. He gathers together myrrh, incense, and other aromatics, and with these composes for himself an odoriferous coffin, in which, at the appointed time, he shuts himself up and dies. When his flesh is consumed, a worm is born, which receives life from the death of the phœnix, and is covered with feathers."

When this worm acquires sufficient strength to take its flight in the air, it takes up the tomb in which repose the mortal remains of its sire, and carries it from Arabia into the city of Heliopolis in Egypt. It flies through the air in open daylight in sight of all the inhabitants; deposits its sacred burden upon the altar of the sun, and flies away. The priests on consulting their chronicles have calculated that this phenomenon is renewed every five hundred years. There is a slight discrepancy in the saint's figures of four hundred years; the bird only living he says one hundred years, and only being respectfully buried by his successor once in five hundred. We know not how to reconcile these facts, unless we suppose the "worm covered with feathers" spends the extra four hundred years in growing into a phœnix, before he acquires sufficient strength of wing to conduct his father's funeral. The phœnix is also mentioned by later authors, by some of whom a different account is given—the old bird setting fire to his funereal pile, and the young one starting up from the paternal cinders.

But we will proceed to speak of another animal not a whit less wonderful than the phœnix. There is this difference, however, the one we are about to mention—the salamander—does really exist. Perhaps we should with more propriety say that there is *another* animal which bears the same name, that does exist, and is well-known to naturalists. This, however, is by no means the salamander of fable; it is a little animal which, so far from inhabiting fire, passes a considerable part of its time in the antagonistic element, water. He is certainly not incombustible as many an unhappy individual of the species has found to his cost, when unmercifully roasted alive, in order to verify the fact. Not incombustible! let us see what is said of him. Why, here is a host of writers all affirming the fact that he is so—Aristotle and Pliny, Ælien and Nicander, Ambroise, Paré, and Grevin, with no end of others. And then, again, the celebrated Benvenuto Cellini, in his most interesting "Memoirs." How can any one doubt a fact so candidly, so circumstantially, and so positively stated, as the following:—"One day, when I was about fifteen years of age, my father was in a cellar where they had been scalding some clothes for washing. He was alone, and was playing upon the viol and singing in front of a good fire of oak-wood, for the weather was very cold. On looking at the fire accidentally, he saw a small animal resembliug a lizard gambolling joyously in the midst of the fiercest flames. My father instantly perceiving what it was, he called my sister and me, pointed out the animal to us, and gave me a severe box on the ear, which caused me to shed a perfect deluge of tears. He gently wiped my eyes, and said to me, 'My dear boy, I did not strike you as a punishment, but only that you should remember that that lizard which you behold in the fire is a salamander, an animal which has never been seen by any known person!' He afterwards kissed me and gave me a few quattrini." Now, as we said before, who can doubt such testimony as this? Here are all the minute circumstances detailed—the family wash, a good fire, which we are told was of oak-wood, the presence of the sister, and, above all, that severe box on the ear, which must have impressed the matter upon his memory? How, after all this, can we say the statement is not true?

Let us now glance at another wonderful specimen of organised life, the basilisk. This name also, like that of the salamander, has been taken by zoologists, and applied to a harmless little animal (found in Guiana and other parts of South America) belonging to the Saurians, or lizard tribe. But this is not *our* basilisk. It is a mere commonplace character, feeding principally upon grains and fruits, and having nothing remarkable, either in its manner of coming into the world, or of conducting itself when there. Not so the basilisk we have to speak about. This is indeed a wonderful animal. The basilisk, we are told by several authors, is hatched from a cock's egg! Truly, so wondrous an origin ought to give the creature qualities beyond the common run of animals. And so it does—those qualities are seated in its eye. The glance of the basilisk's eye produces instant death; in short, it may be literally said of this animal, that no one can bear the sight of it. Science, however, has utterly overthrown the belief in this dreadful animal's existence. Still, as is generally the case, error has in this instance fought hard to maintain its ground until the last, and there are even now, many people who make amends for the loss of the basilisk of the ancients, by persisting in the opinion, in spite of all the laws of anatomy, that cocks *do* lay eggs, and by transferring the dreadful faculty of which science had deprived the basilisk, to certain human beings. It is in Italy that the belief in the "evil eye" exists most strongly, though other countries are by no means exempt from it. Happily, a preservative has been discovered capable of guarding mankind against the fatal effects of this evil eye. It is to carry about the person a small piece of coral in the shape of a hand, having two of the fingers elongated; doubtless, to form the horns for these human basilisks. Smile not at this preservative. It is, at any rate, fully equal to cope with the evil it is intended to counteract. Would that we could say as much for all remedies!

The Dragon.—The dragon is an animal actually existing at the present time. Start not reader. The dragon of the present day is like the two last we have meutioned—the salamander and the basilisk—a mere pretender to the name. Greatly have things deteriorated since the "good old times." The animal now known as the dragon is a small arboreal lizard, distinguished by having a wing-like expansion of skin along its side supported by the six anterior false ribs, by means of which the membrane can be expanded at the animal's pleasure. The dragon lives upon insects. What a falling off from the dragon of antiquity! That tremendous fire and brimstone, green and gold individual, who took a young maiden every morning by way of a relish to his breakfast, or when particularly dainty used to fancy a king's daughter for lunch! That fearful monster slaughtered by St. George, the patron saint of England, as pictured in ancient legends and on George the Fourth's sovereigns! By the way, in speaking of the change in the dragon's nature, we might perhaps say pretty nearly as much for his antagonist. For certainly, if we may trust to history, St. George, who is said to have been an arrant swindler, seems to us as unlike a saint in the modern acceptation of the term, as his fiery foe was unlike the innocent and simple-minded little flying lizard to which modern naturalists have given the formidable name of the dragon.

The fabulous animals we have already mentioned may all be looked upon as superstitions of the past. There are some others about which we are undecided whether to class them with the past or present. Amongst these may be named the *unicorn*. We suppose this animal is now known to be in existence only in public-house signs and coats-of-arms. Be this as it may, we remember perfectly, that in our own days of bread and treacle and brown-holland pinafores, our nursemaid on showing us the picture of the unicorn in our primer, assured us that the animal "was very savage and lived in foreign parts." However, we will pass over this, and go on to speak of a creature that is believed in even at the present day.

The Mermaid.—Who has not heard sailors declare that they have seen this amphibious lady seated upon the rocks by the sea-shore, her tail gracefully curled up, and her long hair hanging down to her waist, while she combed and arranged it to the accompaniment of her delicious singing? We are aware the believers in the existence of the mermaid are rapidly diminishing in number, but we have actually seen, some short time back, at a country fair, a man carrying about a box for exhibition, which box he declared, contained a "real mermaid and merman, caught the other day;" we forget where, probably in the "Bay of Bengal in the West Indies"—for we believe that is the locality from which natural curiosities are generally brought for exhibition. Certain it is, the exhibitor had a very fair share of custom, and, judging from the expressions and exclamations of the spectators, it was evident that the believers in mermaids were far from being an extinct race. Of the exhibition itself, of course, we need not speak, except to say, that it was *not* a mermaid—nor a merman; the figures were of wood, or wax, or leather, we forget which—and let us add, very badly made too—and yet they were believed in!

One more animal and we have done for the present at any rate. Reader, don't laugh when we say we allude to that marvel of all marvels of our own time—the great sea-serpent! We are aware that this animal is seldom mentioned without jokes being made about it. It is a venerable object, too; the sea-serpent and the Flying Dutchman, and other wonders have been seen by sailors from time immemorial—but it is only of late years that it has attracted such extraordinary attention. Letter after letter has appeared in the newspapers for some time back from captains of ships who have seen, shot at, or even captured this monster of the deep; or from friends of these captains, or friends of these friends, who have heard that somebody else heard of the sea-serpent. We are not going to give an explanation of *what* these captains saw when they thought they saw the sea-serpent—or whether they saw anything at all This would necessitate the examination of witnesses and the search after proofs that would be difficult, if not impossible. All we would say of the extraordinary animal in question, may be gathered from our having mentioned it in the present chapter. Simply, that for our own part, we do not believe in its existence in any way; nor will we until we have better proofs of it than any we have yet had, exact and positive though they have been, and circumstantial as Benvenuto Cellini's salamander itself.

THE LADIES' DEPARTMENT.

SHORT PURSE, IN NETTING.

Although this is the first specimen of netting we have given, as it is done only in the ordinary netting stitch, we do not think any particular explanation of the art of netting can be needed by our readers, it being so universally known. Indeed it would be extremely difficult to teach the stitch by writing. Whenever any stitch except that used in common netting may occur in any of our future designs, we will endeavour to explain it as clearly as possible.

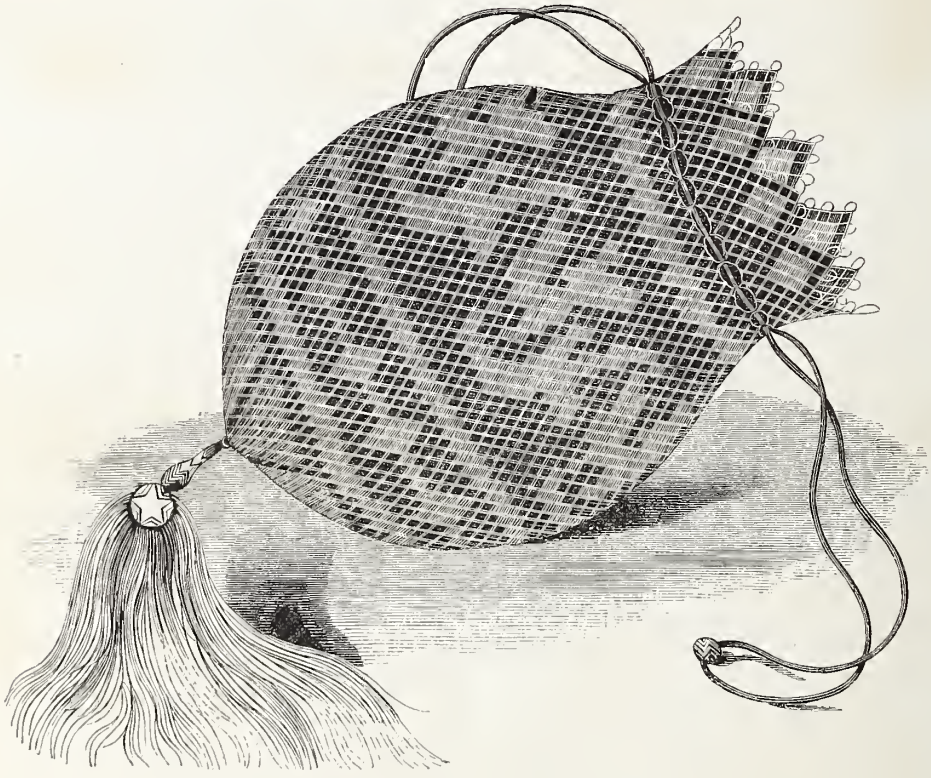
Materials.—Very fine crimson netting silk, and gold thread. Two steel meshes are required, one about No. 15, and one No. 11. Eagle card-board gauge.

Make a piece of foundation of nine stitches, and join your silk in the first.

1st round (small mesh).—1 stitch in every stitch of the foundation.

2nd.—The same.

3rd.—2 stitches in every one of the previous round.



SHORT PURSE, IN NETTING.

4th.—A stitch in every one of the last round.

5th.—× 2 stitches in the first, and one in the second × 8 times.

6th.—A stitch in every stitch.

7th.—Increase eight stitches in the round, by doing two in one eight times, taking care that the stitch increased is the one which precedes the increased stitch of the last augmented round.

8th.—Like 6th.

9th.—Like 7th.

10th, 12th, 14th, 16th, 18th, 20th, 22nd, like 6th.

The intermediate rounds like the 7th. There ought now to be 88 stitches in the round.

Do 44 more rounds, without any increase. Then take the large mesh, and do another round.

Take the small mesh, × miss one stitch, take a stitch in the second, then one in the stitch that was missed. × Repeat this all round.

Do four rounds of plain netting with the small mesh, then begin to make the points.

1st point.—7 stitches; draw out the mesh, × turn the work, and make a stitch on every one but the last; × repeat till you come to a point.

2nd and following points like the first, so that there are 11 in the round.

The pattern is then to be darned with the gold thread, according to the design we have given.

The purse is to be trimmed like the short crochet purse, given in No. 31, of the Illustrated Exhibitor.

EDGING IN BRODERIE ANGLAISE.

Materials.—French muslin, and embroidery cotton No. 40.

This pattern, intended for trimmings of various descriptions, is to be drawn from the engraving, which gives a section of the full size. Mark the muslin to be worked, in strips, using a solution of Indigo. Then tack the work on a bit of *toile ciré*, taking care not to take the needle through any of those parts which are afterwards to be cut out Trace the edging first in outlines; fill up the spaces between with cotton run in; then work over it in buttonhole stitch, making very smooth and even edges.

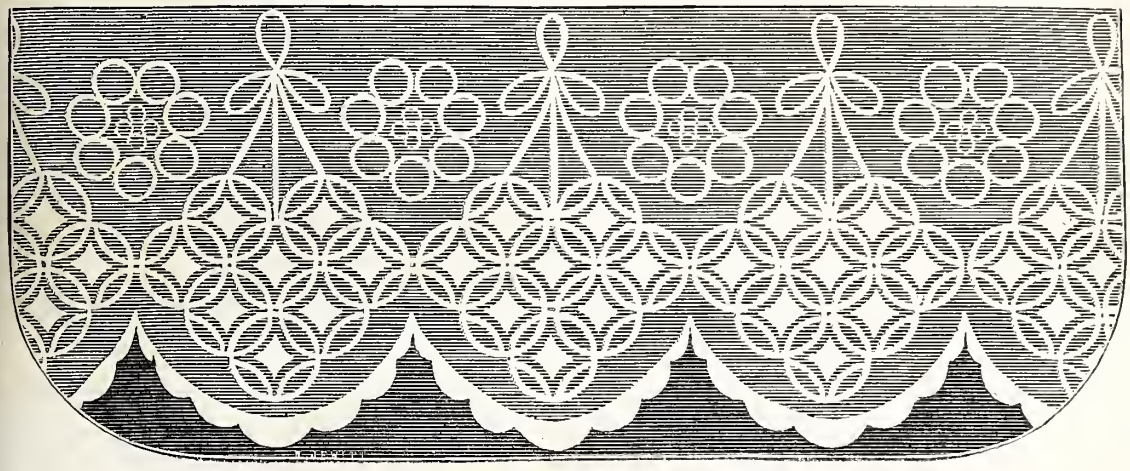
The pattern in each scallop will be seen to consist of a series of rounds every one of which has four oblong sections, forming the outer part, and a diamond in the centre. The oblong parts are to be cut out, and then sewed closely round, as in other broderie Anglaise. A line of thread must also be run and sewed over for the white part of each diamond, and an eyelet-hole made in the centre. The three stems are to be merely sewed over, but the loops at the top are to be cut out, and sewed round.

The cluster of rounds between are merely holes made and sewed closely round. The small ones may be made with a stiletto, but a morsel of the muslin must be cut out of the large ones, and then the stiletto may be used to form a perfect circle. It makes the work stronger if the parts cut out are first traced all round with the embroidery cotton.

COLLAR IN BRODERIE ANGLAISE.

MATERIALS.—French muslin, and embroidery cotton No. 50 and 60.

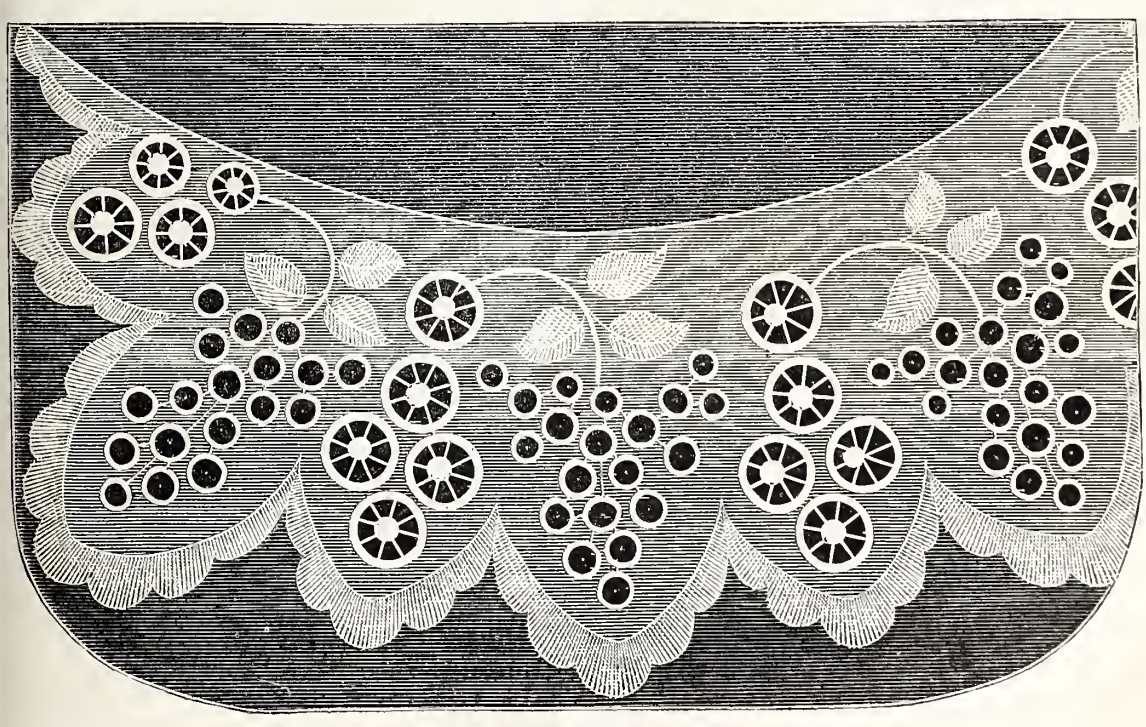
French muslin is the thickest and strongest material known under the name of muslin. It is considerably stouter than jaconet, which it rather resembles in make; very glossy, and with



EDGING IN BRODERIE ANGLAISE.

very close threads. It is the material almost universally used for the embroidery known as Broderie Anglaise.

The collar, of which we give a section the full size, is extremely easy to work. Transfer the design to tracing-paper, repeating the scallops, with the wheels and the cluster of grapes, *once;* the next wheels, which will be the fourth group (not reckoning those at the end), will be the centre of the collar.



COLLAR IN BRODERIE ANGLAISE.

Fold the paper exactly at the point of this scallop, and draw the other half from that already done. This will make the halves correspond.

Draw the pattern on the muslin with indigo, according to our previous instructions for embroidery. Then tack the muslin on *toile ciré*, and trace the inner and outer edges of the scallops. As

this work is to be raised, the space between these lines is to be filled with running, and then worked in very neat and smooth buttonhole stitch.

For the wheels, run round the inner circle first, twice, taking the thread across to the outer round at every bar, and back again to the inner one, so that every bar is formed of a double thread; sew round the circle in buttonhole stitch; then trace round the outer part of the wheel; cut away the muslin between, but without injuring the bars; work the wheel in close fine buttonhole stitch, catching the needle in the small round, at every spoke of the wheel, and working back by covering the three threads with buttonhole stitch.

The stems of the bunches of grapes must be run, and sewed over. The leaves are to be traced in outline, run slightly, like the edge, and then worked in satin-stitch, the stitch being taken always from the veining to the edge of the leaf, which must be very smooth and even. The grapes are made by piercing a hole with a stiletto, and sewing it round; where stems are visible, the thread must be run and sewed over, but in the other places the

needle is to be slipped from one round to another, on the wrong side. In tacking the muslin on the *toile ciré*, be particular to pass the needle through the centre of every wheel. Run a thread for the outline of the neck. It need not be sewed over.

CROCHET INSERTION AND LACE, FOR THE FRONT OF A CHEMISETTE.

MATERIAL.—Crochet cotton, No. 30, with a suitable book.

Make a chain of 276 stitches, if the dress is worn very open; if closer 26, 39, or 52 stitches less will be sufficient.

1st row: S.c.

2nd: × 1 d.c., 1 ch., miss 1, × repeat to the end. Finish with a d.c. stitch.

3rd: 6 d.c.; × 5 ch., miss 5, 8 d.c., × repeat to the end, when there will be only 6 d.c.

4th: 4 d.c., × 5 ch, s.c. on the centre of 5 ch., 5 ch., 4 d.c. on the 4 centre of 8 d.c., × repeat. End with 4 d.c.

5th: 3 d.c., + 5 ch., s.c. on the 3rd of 5 ch., 5 ch., s.c. on the centre of next 5 ch., 5 ch., 2 d.c. on centre 2 of 4 d.c., + repeat. End with 3 d.c.

6th: 4 d.c, × 5 ch., s.c. on the centre of the second chain of 5, 5 ch., 4 d.c. over the 2 d.c., and one chain on each side; × repeat.

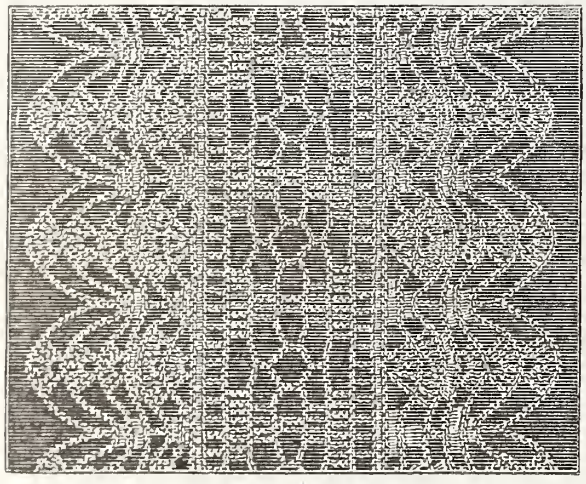
7th: 6 d.c., × 5 ch., d.c. over each of the 4 d.c., and over 2 chain on each side; + repeat. End with 6 d.c.

8th: × 1 d.c., 1 ch., miss 1, × repeat. End with 1 ch.

9th: S.c.

This completes the insertion, on each side of which do the following edging:—

1st row: 3 d.c.; × 3 ch., miss 6, 5 d.c. under the 5th, 3 ch., miss 4, 5 s.c. ×. End with 3 s.c.



CROCHET INSERTION.

2nd: 2 s.c., × 3 ch., 3 d.c. over the 1st d.c., 3 over the 3rd, 3 over the 5th, 3 ch., 3 over the 3 centre of 5 s.c; × repeat.

3rd: Join on the 1st s.c.; 9 ch., × 5 s.c. over the centre 5 of 9 d.c.; 4 ch., d.c. under the centre of 3 s.c., 4 ch.; × repeat.

4th: S.c. on the 5th, 6th, and 7th of 9 ch., × 4 ch., 5 d.c. over the 3rd of 5 s.c., 4 ch., 5 s.c., coming over the 1 d.c., and 2 ch. on each side of it; × repeat.

5th: S.c. on each of 5 s.c., × 4 ch., 9 d.c. over the centre of 5 d.c., 4 ch., 3 s.c on 3 centre of 5 s.c.; × repeat.

6th: A d.c. stitch over the first s.c.; × 5 ch, 9 d.c. over the centre of 9 d.c., 5 ch, 1 d.c. on the centre of 3 s.c.; × repeat.

A very pretty collar of a fashionable sort may be made to correspond with this, by doing a piece of insertion long enough for the neck, and an edging at the ends and along one side, making it sufficiently full at the corners for the outer edge to be perfectly flat.

CROCHET EDGING.

MATERIALS.—Crochet cotton, No. 24, with a suitable hook.

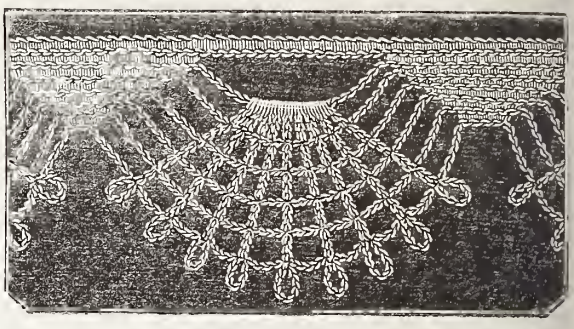
Make a chain of any number of stitches which can be divided by 24, with one over.

1st row: Sc.

2nd: 7 sc. through the chain, × 13 ch., miss 11, 13 sc. through the chains, × repeat. End the row with 13 ch., miss 11, 7 sc. through the chain.

3rd: 6 sc. through the chains, × 6 ch., 9 dc., through the chain, 6 ch., miss the first of the 13 sc., 11 sc. through the chain, × repeat. End with 6 sc. instead of 11.

4th: 5 sc. through the chain, × 6 ch., * 1 dc. over dc., 1 ch., * 8 times, 1 dc., over the last of the nine dc., 6 ch., miss



CROCHET EDGING.

one sc., 9 sc. through the chain, × repeat to the end, and finish with 5 sc.

5th: 4 sc. through the chains, × 6 ch., * 1 dc. over dc., 2 ch., * 8 times; 1 dc. over last sc., 6 ch., × sc. through the chain, ×. End with 4 sc.

6th: 3 sc. through the chains, × 6 ch., * dc. over dc., 3 ch., * 8 times; dc. over dc., 6 ch., 5 sc. through the chain, × repeat. End with 3 sc.

7th: 2 sc. through the chain, × 6 ch., * dc. over dc., 5 ch., close for a picot, 4 ch., * 8 times; 1 dc. over dc., 5 ch., close for a picot, 6 ch, 3 sc. through the chain, ×. End with 2 sc.

N.B. We must be permitted to remind our readers that the term *through* the chain, employed so frequently in this receipt, signifies that the book is to be inserted in both sides of the chain.

THE TALLOW-TREE OF CHINA.

THE TALLOW-TREE (*crotons sebiferum*), called by the Chinese *oo-kicou*, is of the height and appearance of a pear-tree, with twisted branches and a large rounded head. The trunk is short and thick, and the bark smooth. The leaves are alternate, and resemble those of the black poplar. The blossom is yellow; but the most singular part of this tree is the fruit, which is enclosed in the husk, like that of the chestnut. When the fruit is ripe the husk opens of itself, showing three white grains about the bigness of a filbert. These grains contain the beautiful vegetable tallow so useful to the Chinese: The fruit is bruised in a machine made for the purpose. It consists of a wheel moved backward and forward in the trunk of a tree, which is shaped like a canoe, lined with iron and fixed in the ground. The axis of the wheel is attached to a long pole, which is laden with a heavy weight and suspended from a horizontal beam. The berries, thus bruised and divided, are exposed for a considerable time to the action of steam until they become very soft, when they are quickly thrown upon layers of straw, covered up again with other layers of straw, and spread about as equally as possible. Men do this with their feet; and as the berries are very hot, and of course warily trodden upon, the operation is said to bear a striking resemblance to dancing. The appearance of a number of men gravely and carefully performing sudden evolutions on their toes has been described as irresistibly ludicrous, particularly as it is unaccompanied by music. By this process large cakes are formed of the mingled grains and straw. The cakes thus formed are afterwards pressed. Pressure, however, is not the only method of obtaining the tallow, for it is sometimes procured by boiling the bruised seed in water, and collecting the oily matter that floats on the surface. The tallow is hard and white, and has all the sensible properties of that from animals. Dr. Halde says that three pounds of vegetable oil are mixed with every ten pounds of the tallow, and that a quantity of wax is used to give it consistence. The best candles are also coated with wax. When properly prepared, they burn

almost without smoke, and quite free from disagreeable smell. Candles made of this tallow by Europeans have been found very nearly equal to those made of wax.

The tallow-trees are usually planted in extensive plains, and in regular order. The leaves being either of a deep purple or brilliant red, and the blossoms of a bright yellow, the contrast is said to have a very pleasing effect; and European travellers have described the groves of those trees as the most beautiful objects in a Chinese landscape, having a resemblance to extensive flower-gardens.

ROUEN.

Rouen, anciently Rotomagus, the capital of ancient Normandy, and the chief town at present of the department of the Seine Inférieure, is agreeably situated on the Seine, and yields to no provincial city of France in its majestic and venerable aspect, in historic associations, and in magnificent buildings, the triumphs of ecclesiastical and civil architecture. Passing through its streets, the traveller looks upon the mansions of a bygone generation. Scarcely one modern erection meets his glance, except in the most leading streets; its houses are not straight walls with holes in them, but some of the most gabled-faced, timber-fronted dwelling-places, that your most ardent lover of the old time could possibly desire; and yet withal its narrow thoroughfares are thronged with the busiest of busy people, crowds are passing to and fro as if it were the very focus of trade; and so in truth with regard to the cotton manufacturers it really is, to all fair France; all is activity, bustle and excitement, as when those casement windows looked down upon the host of stalwart citizens, who, once within the walls of Rouen, bid defiance to Harry, England, and St. George.

Admirably situated is Rouen for the purposes of trade; the river which flows past tends highly to promote its industry and commerce by facilitating its communication with the capital, and affording ready access to the sea. The Seine, there more than a thousand feet broad, forms a convenient port; and ships of 250 tons burden find a safe harbourage. A boulevard occupies the place of the old fortifications. The Rue Grand Port is at once the chief thoroughfare, and includes the best shops; this leads from the quay opposite the Suspension-bridge to the Cathedral, which occupies one side of the fruit and flower market. This ecclesiastical building is just such a one as good old Evelyn would have intensely hated; he who complained in some harsh and bitter terms about our old Gothic buildings, would have shuddered at this elaborate and profusely decorated edifice, which looks like a piece of rock-work, rough, and incrusted with images, and tabernacles, and ornamented from top to bottom, while upward springs a cage of cast-iron bars, intended to replace a wooden spire burnt by lightning in 1822, and which looks like the parent of all the factory chimneys in and about the town. It is a strange curious old structure, some parts far older than others, some in one style of architecture, some in another, with quaint old carvings that suggest a thousand fancies. You enter the cathedral, and, as a true Englishman, turn to the small lozenge-shaped tablets, let into the pavement of the choir, which mark the spots where the heart of Richard Cœur de Lion and the bodies of his brothers were interred. It is a grand and imposing building; the eye wanders to the pointed arches meeting over head, to the long aisles which stretch out before in a dim mysterious length. There is a calm solemn air over it all, strangely different from the noise and bustle of the fruit market. Passing onward you notice the church of St. Maclou, with its grand triple porch; the church of St Ouen, one of the most perfect Gothic edifices in the world; the Hôtel de Ville, a handsome building of Italian architecture, the Public Library, and the Museum of Antiquities, and the Palais de Justice, of which we give an engraving.

A fine old place is that Palais de Justice, it lines three sides of a square; the wing on the one was built in 1493 as a sort of exchange for merchants. The building is large and handsome, the front of which for many years has been undergoing a careful restoration, and is decorated with all that the ingenuity of sculptors and architects can devise. The chamber in which the parliament of Normandy was wont to meet, is now the Salle d'Assises. It has a fine roof of black oak, set off with gold; but the elegant pendants which hung from it have been removed, and the wainscoting painted over with arabesques and old mottoes, reminding judges of their duties, has been taken down, or entirely effaced.

Not far from the Palais de Justice is the Place de la Pucelle. That spot is the scene of an historical tragedy. Joan of Arc was burnt there in 1431. Poor Joan, who had been led away by her excited imagination from her own happy Lorraine, who seeing the deplorable state of her country, quitted her humble life, led the downcast soldiers of France once more against their English invaders; never had Charles VII. so strong an ally; never French soldiery so intrepid a leader; never before had woman done such wonders in the battle-field; with a particular sword, which she had demanded from the sovereign, she led the freshly-inspired troops to victory, entered Orleans in triumph; the coronation of the king followed at Rheims, a medal was struck in honour of the heroine, her family was ennobled, and the town where she was born exempted from all imposts. After the coronation Joan declared that her mission was at an end, and that she should now retire to private life; but she was overpersuaded to remain with the army, to cheer the soldiers by her presence. Alas, for her, this fatal advice was taken; for soon after the garrison was besieged, gave way, and Joan the heroine was taken by the English. In prison she was subjected to insult, insidious treachery, and even outrage; at her trial in the chapel of the castle she stood alone without council or adviser, browbeaten by her inhuman and bloodthirsty judges, yet confounding them by her plainness and simplicity. Charles VII. neither protested against her trial, nor offered ransom for her life; no Frenchman's hand was raised to help, and her most active enemies were her own countrymen; the Bishop of Beauvois himself, her unjust judge, accuser, and false friend, was her own countryman. So they dragged the simple and enthusiastic woman into the "*Place*," interrupted the priest who was confessing her by their impatience, exclaiming, "Now, priest, do you mean to make us dine here?" and burnt her alive, her ashes being afterwards collected by the common hangman and cast into the Seine.

Joan of Arc was burnt as a sorceress, but her death was not the only one which Rouen witnessed on the same charge. The witch mania was then fearfully prevalent. At an early period these persecutions were directed by the heads of the Catholic church, but in after times Lutherans and Calvinists became as great witch burners as even the Catholics themselves. Men disputed about everything but witches, interpreted almost every text differently from one another, gave new readings to promises and precepts, but one command every man read alike, and acted upon with a fearful diligence, "Thou shalt not suffer a witch to live." Sorceresses and their arts are frequently alluded to by the Roman poets. Thus Tibullus in describing the wonderful powers of a female necromancer, tells us that

> "She plucks each star out of his throne,
> And turneth back the raging waves;
> With charms she makes the earth to cone,
> And raiseth souls out of their graves:
> She burns men's bones as with a fire,
> And pulleth down the lights from heaven,
> And makes it snow at her desire,
> E'en in the midst of summer season."

Speaking of the power of witches, an old writer says:—"1. Some work their bewitchings only by way of invocation or imprecation. They wish it, or will it, and so it falls out. 2. Some by way of emissary, sending out their imps or familiars to cross the way, justle, affront, flash in the face, bark, howl, bite, scratch, or otherwise infest. 3. Some by inspecting or looking in, or to glance or peep at with an envious or evil eye. 4. Some by a hollow muttering or mumbling. 5. Some by breathing or blowing on. 6. Some by cursing or banning. 7. Some by blessing or praising. 8. Some revengefully by occasion of ill turns. 9. Some ingratefully and by occasion of good turns. 10. Some by leaving something of theirs in your house. 11. Some by getting something of yours into their house. 12. Some have a more special way of working by several elements—earth, water, air, or fire. But who can tell all the manner of ways of a witch's

working; that works not only darkly and closely, but variously and versatilely as God will permit, the devil can suggest, or the malicious hag devise to put in practice."

With such a popular belief a class of men sprung up, who made it the sole business of their lives to discover and burn witches. Fresh commissions were issued by Popes Alexander VI. in 1494; Leo X., 1521; Adrian VI., in 1522. In France fires, for the execution of witches, blazed in every town. Here, in England, Bishop Jewell, in his sermons before Elizabeth, used constantly to conclude with a fervent prayer that she might be delivered from all witchcraft. Upon one occasion, in 1598, his words were, "It may please your grace to understand that witches and sorcerers within the last four years are marvellously increased within your grace's realm. Your grace's subjects pine away even unto the death; their colour fadeth—their flesh rotteth—their speech is benumbed—their senses are bereft; I pray God they may never practise further than upon the *subject*.

But nowhere, perhaps, did the witches' fire blaze more frequently—nor solemn judges sit in solemn conclave oftener—listening to the wildest absurdities about witches' sabbaths, and the good old rule; that the teachings of the church had ever been that all good Christians should look with horror upon witchcraft; and that, taking all these things into consideration, the Parliament of Rouen humbly hoped his majesty would permit the law to take its course."

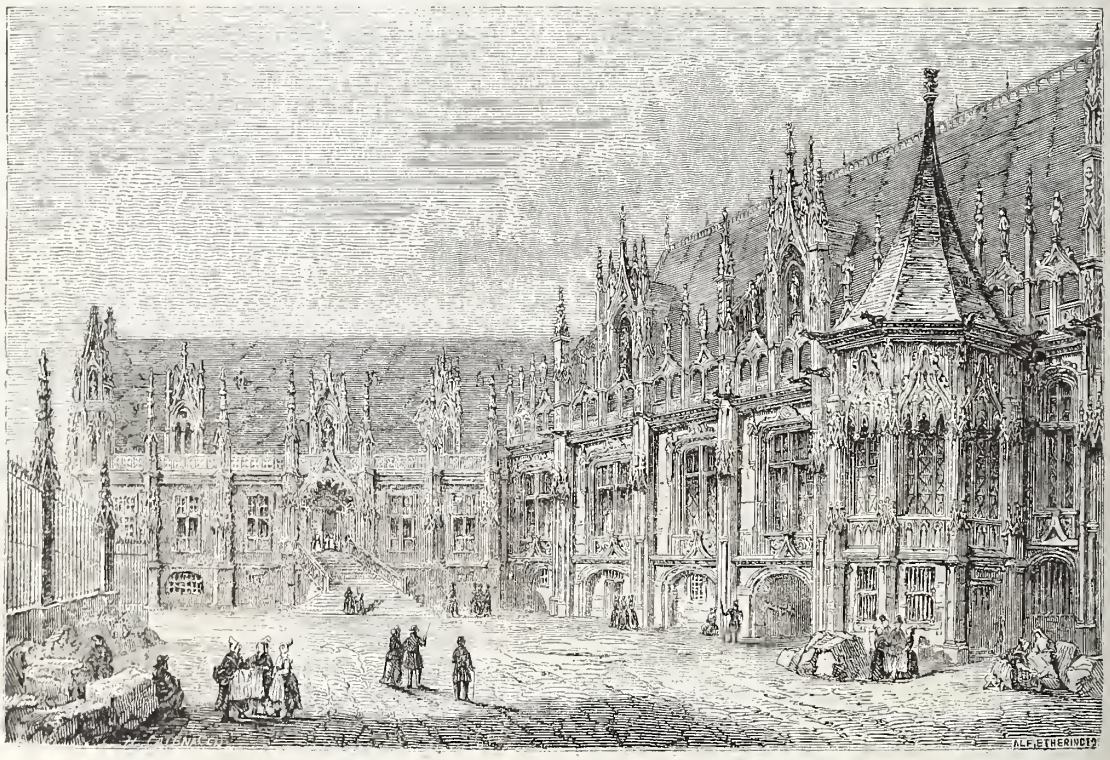
Louis, however, paid no attention to the appeal; the lives of the old women were spared, and prosecution for mere witchcraft, unconnected with other offences, was discontinued throughout France. In England and Scotland the witch mania prevailed to a fearful extent, and even so late as 1644 Matthew Hopkins,—

> "Fully empower'd to act about
> Finding revolted witches out,"

hanged three score of them in one shire;

> Some only for *not* being drown'd,
> And others for sitting above ground."

In passing through Rouen one cannot help thinking of these things, how the mind of man grew mad on this subject of witchcraft, and committed the most daring outrages and fearful cruelties in the name of all that was holy and good. Rouen has other



PALAIS DE JUSTICE AT ROUEN.

dances around old withered trees—than in Rouen. Its Palais de Justice became a palace of cruelty—its law lawless, its mercy merciless; so much so, that when a number of women had been condemned to death on a charge of riding on broomsticks, and Louis XIV. commuted the sentence into banishment, from Rouen came a letter of remonstrance, and an earnest entreaty that the law might take its course.

The remonstrance set forth that there was no crime so opposed to the commands of God as witchcraft; that the Scriptures had pronounced the punishment of death against offenders; that the church and the fathers had fulminated their anathemas to deter from the crime; that the old law of France permitted and enjoined their destruction; that it was the general feeling of all nations that such offenders ought to be punished with death; that the heathen law of the twelve tables, and the law of Constantine, enlightened by the Gospel, united in condemning the sorcerers to death. The remonstrance went on to quote a long catalogue of persons who had been accused from time to time, and broken on the wheel, or burnt to death, and the petitioners begged to suggest that his majesty should reflect e'er he ventured to break through associations. There William the Conqueror died, deserted by his own sons, forsaken by courtiers and friends, plundered by his servants, his body remained a melancholy example of the vanity of earthly grandeur, and owed its funeral charges to the pity of an unknown knight. Yonder, in the Tour de Beurre, hung the famous bell, named George d'Amboise, baptised by bishops long ago, but melted down at the revolution into musket-balls and sous pieces. The Church of St. Ouen suffered considerably from the Huguenots, in the religious wars of France, when they made three bonfires within the building to burn the stalls, pulpit, organ, and priests' robes; and later still from the hands of red republicans, who turned it into an armourer's shop, and erected a forge in the interior. The house in which "Le Grand Corneille" (Pierre) was born, exists in the Rue de la Pie; a statue of him has been erected on the stone bridge. Fontenelle, his nephew, resided in the Rue des Bons Enfans; the composer, Boieldieu, was also born there, and in Rouen died the great Lord Chancellor Clarendon. There is much interest attaching to the old town, and a wander through its streets and squares fully repays the visitor for his time and trouble.

THE SCIENCE OF PLANTS.

HOSE who wish to learn from nature will find lessons as teresting and instructive in the study of plants as in that of imals. Save that the former want sensation and the power of comotion, the line of distinction between them has never been curately drawn. Animals descend into plants, and plants rise to animals, by gradations imperceptible to the human eye. hey form two great kingdoms, the boundaries between which ave never, and can never be distinctly marked, and without a iligent exploration of the one as well as of the other, our nowledge of nature is imperfect.

Were we to describe a fragment of rock, crystal, or metal, ittle more could be said than that it was a congeries of particles, assing on to a state so minute, as to appear on the field of the nicroscope mere atoms or points. Yet, all these atoms, xtremely small as they may be, are little rocks, crystals, or netals of themselves, unchanged, in fact, however far division as proceeded, and all ready to be recombined by cohesion and hemical processes.

But *inorganic* structure of which the fragment supposed is an example, widely differs from that which is termed *organic*, and which prevails among the vegetable tribes. As, for example, we walk abroad in spring-tide, and mingle in the rejoicings of heaven and earth; we find plants and trees awaking from their wintry sleep, and bursting into new and fresh activity: some warily putting forth their buds; others, more confiding, spreading out their deep-green leaves, while here and there, a fair and delicate blossom may be observed—the cheering promise of that garland of bright and fragrant flowers, and of those rich and grateful fruits which, with the advancing and succeeding season, we may hope to enjoy. And why is this? It is because in every part of the landscape which the eye surveys, the chemistry of nature is going on in myriads of little vessels, imbibing sap from the earth, and other elements from the air, and then forming them into leaves, bark, and wood, and into the various substances which provide food for the minute creatures whom we can observe only by a magnifying-glass, through all the range of sensitive being up to man—the lord of this lower world. Wonderful, indeed, are these processes in the hedge-row, the meadow,



THE FOREST.

or the valley; and yet they are still more astounding when contemplated in the annual succession of ancient forests, where the words of the poet may be appropriately employed:—

"Father! thy hand
Hath rear'd these venerable columns! Thou
Didst weave this verdant roof. Thou didst look down
Upon the naked earth, and forthwith rose
All these fair ranks of trees. They, in thy sun,
Budded; and shook their green leaves in thy breeze;
And shot towards heaven. The century-living crow,
Whose birth was in their tops, grew old and died
Among their branches, till at last they stood
As now they stand, massive, and tall, and dark;
Fit shrine for humble worshipper to hold
Communion with his Maker."

Surely, then, here are innumerable objects adapted not only to attract, but to reward the attention of an intelligent mind; and hence we now enter on a series of papers by which we hope the path will be opened to their profitable study, for many who have not hitherto engaged in it; while others may be stimulated by the facts about to be disclosed to pursue it with greater activity, or with more comprehensiveness and precision.

The science of botany, comprehending the knowledge of the vegetable creation, is commonly divided into three branches:

I. The anatomy and physiology of plants, comprising their structure, constituent principles, modes of increase and growth, and also their diseases and duration.

II. Their natural history, comprising an explanation of the characteristic terms by which botanists have universally agreed to distinguish the varieties of structure of the various organs, to which has been given the name of terminology; classification, or method of arrangement; and nomenclature, or system of naming each individual.

III. Applied, or practical botany is sometimes added, comprising the relation of this science to agriculture, horticulture, arboriculture, and also to medicine.

The papers we now commence will be specially appropriated to the classification of vegetables, according to their affinities, forming a history, in fact, of vegetable families. But that this history may have all the interest of which it is susceptible, it will be desirable to borrow from other departments of the science what relates to the structure and functions of the organs of plants, the technical terms by which they are designated,—and particularly to those vegetables which are agreeable or useful, or which are injurious to the human race.

ORGANS OF PLANTS.

Vegetables are popularly described as living beings, endowed with powers of nutriment and reproduction, but unable either to feel or to move voluntarily. These functions are passed through by means of *organs*, which we are now about to describe. So minute are the particles of which they are formed, that they require to be examined by optical instruments of considerable power. There are, however, other parts, the structure of which as observed in various plants differs but little; these are denominated *Elementary Organs*, and with these our descriptions will properly commence.

ELEMENTARY ORGANS.

If we attentively examine the leaf of a plant, it will be found to consist of a midrib, and veins which issue from it, a pulpy substance filling up the interstices, and a cuticle or skin, covering the whole. The midrib and veins are a prolongation of the footstalk, and in them may be detected three kinds of structure: their toughness and adaptation to sustain the softer parts, is owing to *woody fibre;* the fluid is transmitted by *ducts* or canals; and there are *spiral* vessels, to convey the air. Proceeding still further, all of them may be discovered existing under the same form in the stem, of which these portions of the leaves are but continuations. Nor here should the investigation stop: the pulpy substance which lies among them, very nearly resembles the pith of the stem and the fleshy substance of soft fruits. These several kinds of structure are termed the *primary tissues;* they are the elements of which the fabric is reared, and serve the purpose which the bones, muscles, fat, blood-vessels, nerves, and skin do to the animal.

There is one kind of tissue which every plant has in some form or other; many, indeed, are entirely composed of it; this is *cellular*, or *vesicular tissue*, which usually consists of little vesicles or bladders of various figures, adhering together in masses. It is transparent, and generally colourless, but sometimes it has a tinge from matter contained within. When the vesicles are first formed, they are usually nearly globular, or of a figure resembling an egg; so that, if cut across, their walls would present a series of circles touching each other at certain points. But as the cells are gradually pressed against each other, their sides become flattened. Their form, therefore, is dependent on the degree of pressure on their respective sides. The diagram (fig. 1) describes

Fig. 2.

Fig. 1.



Fig. 3.



Cells of the Bean.

Cells of Pith.

Outer Membrane of a Cell.

the form they have in the bean; in which the pressure on the sides is not equal. But when it is so, the cell will sometimes be cubical (fig. 2), as it often appears in pith, of which we also give a representation.

So far, then, a cell appears to consist of a simple membrane, but it is now well known to be constituted, generally, if not invariably, of two layers of very different composition and properties. The inner one appears to be the one first formed, and most essential to the structure; it is extremely thin and delicate, and escapes attention so long as it remains in contact with the outer layer. The outer layer (fig. 3) appears to be subsequently produced, as if to cover the inner one and its contents; and may consist of several thicknesses.

The bladders of cellular tissue are developed, in many instances, with great rapidity. Lindley says, "I have seen *Lupinus polyphyllus* grow in length at the rate of an inch and a half a day. The leaf of *Uvania speciosa* has been found by Mulder to lengthen at the rate of from one and a half to three and a half lines per hour, and even as much as from four to five inches per day." The growth of mushrooms has become proverbially rapid. Junghuno states that he has known the *Bovista giganteum*, in damp warm weather, grow in a single night from the size of a mere point to that of a huge gourd. Supposing, therefore, its cells to be not less than the 1-200th of an inch in diameter, and they were probably nearer the 1-400th, it may be estimated to have consisted, when full grown, of about 47,000,000,000 cells; so that supposing it to have gained its size in the course of twelve hours, its cells must have been developed at the rate of near 4,000,000,000 per hour, or more than 66,000,000 in a minute!

The walls of the vesicles of cellular tissue, however, do not always consist of simple membrane alone, for these are occasionally strengthened by *fibre* lying in contact with their internal surface, or, which occurs more frequently, thickened by a deposit of hard matter secreted subsequently to the formation of the cell.

Elementary fibre greatly varies in size, but may be compared to hair of inconceivable fineness. "In *Pleurothallis muscifolia*," says Lindley, "where it is large, I find it 1-3000th, in *Crinum amabile*, where it is middle-sized, 1-7250th of an English inch in diameter. It has frequently a greenish colour, but is more commonly transparent and colourless. It appears to be sometimes capable of extension with the same rapidity as the membranes among which it lies, and to which it usually adheres; but it occasionally elongates less rapidly, when it is broken into minute portions, and is carried along by the growing membrane. In direction it is variable." Fibres vary in their length, but the greater part have a very thick wall, which gradually becomes so.

A peculiar set of markings is observable on the woody fibres

of some plants, but, though they must answer some important purpose, this has hitherto escaped detection. So various is the arrangement of minute bodies interposed between the wood cells

Fig. 4.

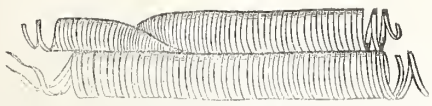


Fibre of the Clematis.

that, as Dr. Carpenter states, "it is sometimes possible to determine, by the microscopic inspection of a minute fragment, even of a fossil wood, the tribe to which it belonged."

Spiral vessels (fig. 5), like the cells in which they are formed,

Fig. 5.



Spiral vessel of the Melon.

have a spiral fibre winding from end to end, remaining distinct from the cell itself, and retaining its elasticity. This fibre may be double, and even quadruple.

Of *ducts* there are various forms, in some parts of which the traces of the spiral structure are very obscure; whilst in other portions of the same they can be easily distinguished. Some ducts are dotted (fig. 6); the dots being thinner spaces of its walls.

Fig. 6.

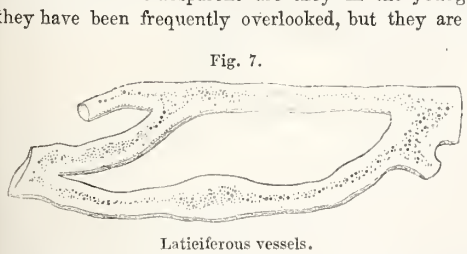


Dotted Duct.

According to Dr. J. W. Griffith: "When a spiral vessel has formed in a young plant, the rapid growth of the stem induces considerable pressure of the surrounding parts; the consequence is, that the convexity or parts of the surrounding vessels or cells opposite to the spiral vessels are pressed firmly against it, while opposite the intercellular and intervascular spaces the pressure is much less; thus the fibre within the compressed spiral is bent into as many sides as there are surrounding and pressing vesicles or vessels. Accordingly, if the spiral vessel be examined at this period, it will be found bent, and the natural curve of the fibre straightened. Opposite the spaces just referred to; that is, at the bendings of the fibres, the latter become firmly adherent to the membrane, thickened and united to the fibres above and below."

In some plants another class of vessels exists (fig. 7), which consist of branching tubes, so combined as to form a network. So thin and transparent are they in the young plant that they have been frequently overlooked, but they are afterwards gradually increased in thickness. These vessels contain a peculiar milky juice, which is called *latex*, and they are consequently known as the *laticiferous* vessels. They contain a great quantity of minute grains which swim in the milky juice.

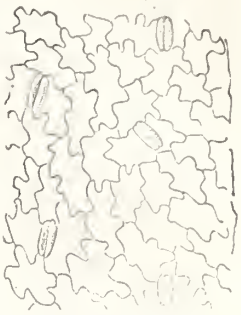
Fig. 7.



Laticiferous vessels.

The *epidermis*, or *cuticle* (fig. 8), covers the exterior surface of the plant, and consists of a series of layers of cells, which are continually wearing off at the outer surface, and are as constantly being renewed. Another structure, continuous with the epidermis is the *epithelium*, between the two there is no real difference, their origin and renewal are the same, but each one answers its appropriate end in the general economy. The tissues defended by the cuticle are not entirely cut off by it from the external air; for it has certain apertures of a very peculiar character, termed *stomata* or mouths, usually of an oval form, which open or close under the influence of light.

Fig. 8.



Epidermis and Stomata.

Hairs, prickles, stings, and other bodies are developed from the cuticle. The *hairs* of plants are sometimes bristly, at others soft and downy, sometimes simple (fig. 9), at others forked (fig. 10), and sometimes they are scattered very thinly. In some instances a hair forms but one long cell; while in numerous others, every hair consists of a row of cells (fig. 11), placed end to end, sometimes sending off minute side branches.

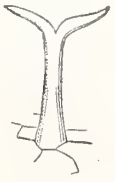
When hairs are tubular and pointed, and fixed on minute glands in the cuticle (fig. 12), which secretes an acrid fluid, which is forced up through the tube when the extremity is touched,

Fig. 9.



Simple Hair.

Fig. 10.



Forked Hair.

Fig. 11.



Hair formed of Cells.

Fig. 12.



Hair with a Gland.

a *sting* is formed, of which the nettle is a familiar example. A well-known instance of the *prickle* is supplied by the rose-tree. As such prickles may be stripped off and easily detached from the cuticle, they are distinguished from *thorns*, which issue from the wood of the branch, and have an entirely different origin, for they may be regarded as stunted leaf-buds. Such then are the elementary organs of plants: we proceed to others of a different class, expressly designed for their nutrition.

ORGANS OF NUTRITION.

When a seed is put into the ground under favourable circumstances, the vital principle within begins to operate, and a development takes place, not only upwards but downwards. The descending portion is termed the root, and by it plants are not only fixed to the earth, but nourishment is derived from the soil. No root whatever is perceptible in some aquatic plants. But in such apparent exceptions to what may be regarded as a general rule in nature, analogy leads to the presumption that even where roots have not been observed, they actually exist. In confirmation of which it may be stated, that many plants to which roots were long denied, have actually possessed them in some periods of their existence, and are capable of deriving nourishment either from the earth, the water, or the air.

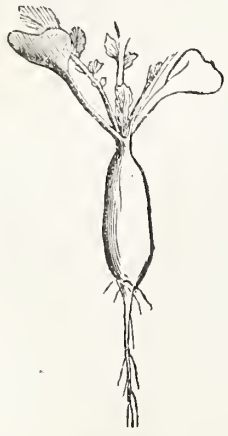
A root usually consists of three parts: the *neck*, or line of separation from the stem; the *body*, or middle portion of the root; and the attenuated and fibrous portion, or *little roots* through which the nourishment is chiefly derived. Roots are abundantly provided with pores, or spongioles as they are called, from their resemblance to a small sponge, that they may imbibe whatever nutriment comes within their reach, just as a lump of sugar absorbs the liquid in which it is placed.

How rapidly this is done may be easily seen by taking up any growing plant, clearing the soil from its roots, and then immersing them in water, especially if the sun is shining brightly upon it, when the water will quickly disappear. Four plants of spearmint, grown with their roots in water during fifty-six days, and weighing together only 403 grains, were found to take up 54,000 grains, or about seven pints of the fluid. Only a small proportion

of the water, however, is retained to serve as a part of the food of the plant. The greater part is sent off again from the leaves by the process of exhalation.

Of roots there are many varieties, of which the following are examples: a *tapering* or *spindle-shaped* root (fig. 13), which is thickened, fleshy, tapering downwards, and sending out small fibres; a *fibrous* root (fig. 14), which consists entirely of fibres of radicles, which may be undivided or branched; a *knotted* root (fig. 15), in which knots appear on the fibres; and a *tuberous* root (fig. 16), which consists of one or more fleshy knots, varying

Fig. 13.



Tapering Root.

Fig. 14.



Fibrous Root.

Fig. 15.



Knotted Root.

Fig. 16.



Tuberous Root.

in form; and which are merely subterranean reservoirs of nutriment for the development of the stem and leaves for the next year.

There are only two directions taken by the root which require to be noticed. One is *contorted* when bent upwards and downwards in a zigzag manner, as may be seen in the bistort; the other is the *creeping* root. The latter class is said to be especially injurious to agriculturists. But their number is much less than has been generally thought; for in most cases, these will be found to be mere branches springing off from the stem above the neck of the root, but afterwards developed under ground, and even throwing out radical fibres from different points. Among these is the couch-grass and the potato, the fibrous parts of which bearing the tubers are now ascertained to be branches. This might long ago have been conjectured, as cultivators have been accustomed to heap up the earth on the lower part of the stem, so as to increase the number of those branches, and render the crop more abundant.

It is a remarkable fact that roots appear to have a certain power of selecting their food—some of the substances dissolved in the fluid which surrounds them being absorbed, and others being rejected. Thus, if roots be placed in water coloured by any substance, of which the particles are very minute, the finest of these will be absorbed with the fluid, and carried to the leaves; while the coarser ones are left behind. In like manner, if the roots be immersed in a solution of gum or sugar, a certain proportion only of these substances will be taken up with the fluid in which they are dissolved; and that which remains will gradually become thicker.

But, to take illustrations from natural, rather than from



experimental processes, we may consider the remarkable contrast presented by the roots of wheat and those of a pea. The roots of the pea will imbibe from the soil whatever it contains of *calcareous* substances,—that is, those formed of lime and its compounds; and it will reject *siliceous* or flinty matter. This, on the contrary, will be taken up by the wheat; and it is the deposition of *silex* in the stem which gives to the corn-plants so much firmness. There is enough silex in a wheat-straw to make a bead of glass when melted with potash by means of a blowpipe; and the writer has seen a single inch of wheat-straw placed vertically between two boards, where it sustained a pressure of fourteen pounds, and yet remained perfectly uninjured.

CORUNNA.

Corunna is the capital of the province of Galicia, which being thickly populated by a poor, but hardy race, supplies several thousand labourers every year to the rest of Spain and Portugal. They are famed for their honesty and sobriety.

The harbour of Corunna is amongst the finest in Europe, and from time immemorial has been the favourite resort of the Spanish Navy. There is a lighthouse here, the erection of which some antiquaries attribute to the Phœnicians. The port serves for the purposes both of war and commerce. It is at Corunna that all the sail-cloth used in the Spanish navy is made. It contains an arsenal, a powder manufactory, and schools for the instruction both of naval and military cadets. The population is about 30,000. lighthouse by Charles III. Corunna blazons on its shield a tower on rocks, a lamp, two crossed bones, and a skull above crowned with an orle of eight scallops in honour of Santiago. Corunna is divided into two districts, the upper and the lower; the former contains the ecclesiastical and official buildings, the latter or new town, once a mere refuge of fishermen, is now a handsome, well-built town, in the broad streets of which one may pass many a pleasant hour.

As the Englishman mounts the heights and looks down upon the land-locked bay, he cannot fail to be impressed by the glorious and melancholy reflections which the scene suggests. Here, in 1386, John of Gaunt landed to claim the crown of Castile in



THE BAY OF CORUNNA.

Corunna—called by the Spaniards *La Coruna*—is the chief seaport of Galicia, and stands on a headland of the three bays or rias of Coruna, Betanzos, and El-Ferrol. The seaboard is picturesquely indented, and the iron-bound coast rises bluffly out of the waters, proclaiming to the Atlantic, "Thus far shalt thou come and no farther." Corunna was founded by the Phœnicians, those early colonists, and captured by the all-conquering Roman power, when Galicia was overrun by Junius Brutus, who called it Ardobicum Corunium; nevertheless, the present name has been derived by some from Columna, the tower, the Phœnician pharos, and this is still called *La Torre de Hercules*. It was repaired for Trajan by an architect named Caius Servius Lupus, as is conjectured from an antique inscription on a rock hard by. The present building is square, and about one hundred feet in height; it was allowed to go to ruin by the Spaniards, but at the earnest entreaties of the English and Dutch consuls was restored as a right of his wife, the daughter of Pedro the Cruel; on yonder waters rode the *Invincible Armada*, which proved itself invincible to neither the elements of nature nor the hand of man, but met with total and immediate defeat. Drake and Norris, with 1,200 men, took possession of Corunna in 1589; but for a still more interesting event the place has peculiar attractions.

Look over the roofs and spires of Corunna to the heights of Elvina, and a battle, a triumph, and the victor's death, suggest themselves at once. Corunna and Sir John Moore are ever associated. Moore, like Wolfe, Abercrombie, and Nelson, lived long enough to know that the foe was defeated, and dying said, "I hope the people of England will be satisfied; I hope my country will do me justice." His requiem has been sung by Charles Wolfe, and is one of the most beautiful and touching poems which was ever written in a soldier's honour.

SCIENTIFIC RESEARCH.

Antediluvian Sculptures.—The French, not merely paint their daguerreotypes, they paint and embellish their geological specimens, and now the government have given a commission to certain sculptors to produce representations of groups of animals for the *Jardin des Plantes*. They have taken up the odd and fanciful idea of reviving in statuary the antediluvian animals discovered and described so admirably by Cuvier. M. Fremiet is employed to execute the *plesiosaurus doliehoderius*, a sort of lizard with the neck of a swan, and of a colossal size. M. Jacquemart is to execute the *pterodactylus crassirostris*, a species of bat of immense dimensions, and the head of a crocodile. Sculpture is thus to reproduce as the handmaid of Science from the debris of distant ages the forms of lost species.

Vegetable Physiology.—Grafts and hybrids. Everybody knows the wonders obtained by grafting plants. By grafting upon wild plants the branches of plants of suitable size and vigour we can multiply exceeding good fruits and beautiful flowers; always from plants of the same kind and origin, and sometimes from heterogeneous plants. When the plants are of the same family, it is easy to reunite upon one subject many kinds of flowers. There is indeed a kind of laburnum which, without being grafted, yields beautifully both pink and yellow blossoms. Hybrids are made by placing the powder from the stamen of one plant upon the pistil of another congeneous plant. These new sorts are often deemed especially precious, because they combine the qualities of both the plants from which they issued. *Cactus hybride*, bern of a marriage of *cactus phyllantoides* with *cactus grandiflora*, or *speciosissima*, combines the splendid flowers of the one, with the multiplicity of the flowers of the other parent.

But there exist numerous facts which appertain partly to grafting and partly to hybridity. There are certain trees which like the *Cytisus Adumi*, a species of clover, produce many kinds of flowers, and others, like the apple-tree, pear-tree, and vine, bear many kinds of fruits.

M. Gandichaud at a recent meeting of the Academy of Sciences, exhibited a branch of an apple-tree, sent from Bernay (Eure), by M. Mouriez, professor of Mathematics. On which there were three fruits. Upon the upper part of it were two red rennets, and upon the lower a yellow rennet of Canada. This *heteroearpus*, or cross, multiplies very well by grafting, and yields generally the two kinds of rennets upon each branch.

M. Dureau de la Mallo saw, in 1834, a pear-tree—*un poirier de bon chrétien*—grafted on a quince-tree. In 1850 the grafted tree yielded pears, *de bon chrétien*, of true quality, and another fruit not yet named, of a new kind. This fruit is trapezoid in form; that is, it has four sides, none of which are parallel to the other, the stalk short and the skin thick and rough. The good christian pear is very large, has various shapes, is of a clear-yellow skin, tinged with red, is tender and has a slight perfume.

An archbishop of Valence, of the name of Majoral, having a passion for hybrids, is said to have produced a fig-tree which bore at once white and red figs, or as some have even affirmed, half and half—figs half white and half red. In the Levant there is a process of fecundation which is called "caprifaction." The plants are dioics; that is, the male and female plants live on separate stems, or in the quaint Greek of Linnæus, in two houses. It appears to be proved, that the pollen is carried to the pistils by certain insects, which having undergone their metamorphoses in the one, go and deposit their eggs in the others, carrying upon their wings and bodies the fecundant and prolific pollen. These insects resemble the insects which by their punctures make the gall-nuts upon the oaks. To assist this process, the inhabitants of the country bring the male near the female trees, and hang upon the trees a sort of thistle to which the insects are partial. Without this curious fecundisation, the figs would never reach maturity, and fall before they were eatable.

New Cochineal.—M. Guerin-Meneville has discovered a new kind of cochineal (*coccus fabæ*), which he hopes will be found to contain as much colouring matter as the Mexican cochineal. When, like the cochineal of commerce, it is crushed upon linen or paper it gives out an intense scarlet. This cochineal is found in the centre of France. It lives upon the Windsor-bean—*fève de marais*. What makes the discovery more important is, that it is deemed practicable to rear it and obtain supplies of it regularly. M. Guerin-Meneville has commenced experiments upon a large scale at Sainte-Tulle, and expects to reap a satisfactory return.

Discovery of a New Fossil Buffalo in Algeria.—Hitherto there has been only one known species of Fossil Buffalo but a mutilated skull of great size, found in Algeria, near Setif in diluvial soil, has been regarded by M. Duvernoy as the representative of a second kind, which is entirely new. This new species is a sort of *aries*, resembling the great-horned *arietes* (rams), but it is clearly distinguished from them by different characteristics of the configuration of the skull. M. Duvernoy proposes to name the new species *Bubalus* (*aries*) *antiquus*.

The Fossiliferous Strata.—According to M. Elie de Beaumont, the fossiliferous strata have taken seven or eight millions of years to deposit themselves. The earth condensed itself by sending its heat forth into space while revolving at first as a gaseous mass. The spheroidal crust was formed by crystallisation, and the primitive mass divided in two concentric parts, the one enclosed in the crust, and the other enveloping it on all sides. Now all the history of the earth results from the conflict which establishes itself between the out and the in, the above and below of the strata. All the matters which are contained in the atmosphere would, with the progress of cooling and of life, gradually separate themselves. The watery vapour, resolving itself into rain, and sweeping the regions which it traversed, cleared them of the matters which form the sedimentary deposits. These, pressing upon the interior mass, would force it to burst out, and would insinuate themselves in the fissures of the soil. Contact with external agencies would alter the igneous deposits, and the neighbourhood of Plutonian rocks would imprint similar modifications upon the Neptunean strata. The crust raised up by the conflict would form, under the sea, the table-lands, of which vegetation would take possession. These would attract and condense the enormous mass of carbonic acid which the atmosphere contains. Corrosive agencies attack unceasingly the superficial crust, and the waters transport here and there the products of their labours. To these slow influences would succeed from time to time the formidable revolutions which change, by renewed efforts, the configuration of the soil. During eight millions of years all the forces of nature worked, without ceasing, to vary the composition of the globe, to form collections of divers substances; and when they had fulfilled their task, man being comes and takes possession of the results of the labours of centuries. Until then the globe appeared to be an empty house—now the master has come home. He is in reality the master at home. He knows the uses of all those things which were, until then, unemployed; and however great may be the riches of their resources, they do not surpass the capacity of his wants. Neptune and Pluto, and all the gods have worked for him during these quintillions of years. They have not made a single thing too much. The history of the globe thus leads to man,—that is to say to mind.

Fossil Plants in Styria and Croatia.—M. Ungar has discovered at Lotzka, in Styria, and at Radoboj, in Croatia, great numbers of fossil vegetables, the leaves and fruits of which are easily recognisable. Of 420 different species eight only were monocotyledons or cryptogames, and all the others dicotyledons; that is to say in English, eight only were plants of one cup or cavity or plants of concealed sexes, while all the others were plants of two seminal leaves. A comparison of these plants with those of the present day seem to lead to the following conclusions —The flora of Lotzka seems to belong to that of a group of islands situated in a vast ocean which stretched over Europe and Africa between the tenth and fifty-fifth degree of north latitude; its general character resembled very much that of a tropical region and was very similar to the actual flora of the Pacific Ocean and of New Holland. The flora of Radoboj is of a more recent epoch. The present vegetation of the islands of the South Sea exhibits the relics of a vegetation which at a remote period spread itself over all the earth.

THE BIRD OF PARADISE:

A SWEDISH LEGEND.*

Before Luther began to preach the Reformation, monasteries studded the slopes of every hill in Germany; huge buildings with a quiet, peaceable aspect, surmounted by a slender tower rising in the midst of the forests through which the ringdoves hopped from branch to branch. Those gray walls covered many a fault, and many an error, but they sheltered men also who were insensible to worldly joys, saints whose thoughts dwelt only on the heritage promised by Christ.

At Olmutz in particular, there was one who had rendered himself famous throughout the surrounding country by his piety and learning; he was a simple and unaffected man, like all men whose knowledge is great, for science is like the sea—the farther we advance the wider grows the horizon, and the less do we seem ourselves. Brother Alfus had had, nevertheless, his seasons of doubt and misgiving; but after having wrinkled his brow and whitened his hair in vain disquisitions, he had at last been compelled to fall back upon the faith of little children; and then confiding his life to prayer, as to an anchor of mercy, he suffered himself to rock gently in the tide of pure love, holy visions, and heavenly hopes.

But in a little while rough squalls began again to shake the saintly bark. The temptations of the understanding returned, and reason began haughtily to question faith. Then Brother Alfus grew sad; dark clouds began to float over his spirit; his heart grew cold; and he could no longer pray. Wandering through the country, he sat upon the mossy rocks, lingered by the foam of waterfalls, and sauntered amidst the murmurs of the forest; but it was in vain that he sought light from nature. To all his inquiries the mountains, the leaves, and the streams gave but one answer—God!" Brother Alfus came out victorious from many of these struggles, and each time his faith was made firmer than ever, for temptation is the gymnasium of the conscience; if it does not destroy it, it strengthens it.

But after a time inquietude again came over his spirit more keenly than ever. He had remarked that everything beautiful loses its charm by long use; that the eye soon grows tired of the most beautiful landscape, the ear of the sweetest voice, the heart of the fondest love; and then he asked, how shall we find, even in heaven, a source of eternal joy? In the midst of magnificence and delight which have no end, what will become of our restless souls? Will not unchangeable pleasure at last bring on *ennui*? "Eternity! what a word for creatures who know no law but that of change and diversity? What man would wish his sweetest pleasure to last for ever. O my God! no more past and no more future! no more remembrances and no more hopes! eternity! eternity! O sorrowful word! O word, which hast spread fire and lamentation upon earth, what must thou, then, mean in heaven?" Thus spoke Brother Alfus, and every day his doubts became greater. One morning he issued from the monastery before the other monks had risen, and descended into the valley. The fields, still moist with last night's rain, were glistening under the first rays of the rising sun like a maiden smiling through her tears. Alfus strolled gently through the shady thickets on the hill-side. The birds, which had but just awoke from their slumbers, were perched in the hawthorns, shaking down rosy blossoms on his bald head; and some butterflies, still half-asleep, flew lightly in the sun to dry their wings.

Alfus stopped to gaze on the scene before him. He remembered how beautiful it had seemed when first he saw it, and with what transport he had looked forward to ending his days in that delightful retreat. For him, poor child of the city, accustomed to see nought but dark courts and sombre walls, these flowers, and trees, and clear air, were bewitching novelties. How quickly passed the year of his novitiate! Those long rambles in the valleys, and those charming discoveries! Streams murmuring through the corn-flags, glades haunted by the nightingale, eglantine roses, wild strawberries—what joy to light upon them for the first time! To meet with springs from which he had not yet drunk, and mossy banks upon which he had never yet reclined! But alas, these pleasures themselves do not last long; very soon you have traversed all the paths of the forest, you have heard the songs of all the birds, you have plucked nosegays of all the flowers, and then adieu to the beauties of the country! Familiarity descends like a veil between you and creation, and makes you blind and deaf.

And thus it was now with Brother Alfus. Like men whose abuse of ardent spirits has made them cease to feel their power, he looked with indifference on a spectacle which in his eyes had once been ravishing. What heavenly beauties then could occupy throughout eternity a soul which the works of God on earth could charm for the moment only? Asking himself this question, the monk walked on, his eyes fixed on the ground, but seeing nothing, and his arms folded on his breast. He descended into the valley, crossed the stream, passed through the woods, and over the hills. The tower of the convent was beginning already to fade in the distance, and at length he stopped. He was on the verge of a vast forest, which extended as far as the eye could reach, like an ocean of verdure. A thousand melodious sounds met his ears from every side, and an odorous breeze sighed through the leaves. After casting an astonished look upon the soft obscurity which reigned in the wood, Alfus entered with hesitation, as if he feared he were treading on forbidden ground. As he advanced, the forest became larger; he found trees covered with blossoms which exhaled an unknown perfume; it had nothing enervating in it, like those of earth, but was, as it were, a sort of moral emanation which embalmed the soul. It was strengthening and delicious at the same time, like the sight of a good action, or the approach of a lover. At length he perceived farther on a glade radiant with a marvellous light. He sat down to enjoy the prospect, and then suddenly the song of a bird overhead fell upon his ear,—sounds so sweet as to defy description, gentler than the fall of oars on a lake in summer, than the murmur of the breeze amongst weeping willows, or the sigh of a sleeping infant. All the music of the air and earth and water, the melody of the human voice, or of instruments, seemed centred in that song. It was hardly a song, but floods of melody; it was not language, and yet the voice *spoke*. Science, wisdom, and poetry, all were in it; and in hearing it one acquired all knowledge.

Alfus listened for a long time, and with increasing pleasure. At last the light which illumined the forest began to fade, a low murmur was heard amongst the trees, and the bird was silent.

Alfus remained for a while motionless, as if he were awaking from an enchanted sleep. He at first looked around in a sort of stupor, and then arose. He found his feet benumbed; his limbs had lost their agility. It was with difficulty he directed his steps towards the monastery.

But the farther he went the greater was his surprise. The face of the whole country seemed changed. Where he had before seen sprouting shrubs, he now saw widespreading oaks. He looked for the little wooden bridge by which he was accustomed to cross the river. It was gone, and in its place was a solid arch of stone. On passing a hedge on which some women were spreading clothes to dry, they stopped to look at him, and said amongst themselves,—

"There is an old man dressed like the monks of Olmutz. We know all the brothers, but we have never seen him before."

"These women are fools," said Alfus, and passed on. But at last he began to feel uneasy. He quickened his footsteps as he climbed the narrow pathway which led up the hill-side towards the convent. But the gate was no longer in its old place, and the monastery was changed in its appearance; it was greater in extent and the buildings were more numerous. A plane-tree which he had himself planted near the chapel a few months

* This legend is of Swedish origin, but has been popularised in Germany by the celebrated Schubert in one of his works, entitled *Old and New*. Schubert has attained some distinction as a naturalist, as well as a writer. Amongst his works are the *History of the Soul*; the *Symbolism of Dreams*; *Thoughts on the Dark Side of Nature*; *Travels in the Neighbourhood of Salzburg, the Tyrol, and the South of France*.

before, covered the sacred building with its foliage. Overpowered with astonishment the monk approached the new entrance, and rang gently. But it was not the same silver bell, the sound of which he knew so well. A young brother opened the door.

"What has happened?" asked Alfus; "is Antony no longer the porter of the convent?"

"I have been porter here for five years," was the rejoinder "and I do not remember to have ever seen you."

A number of monks were walking up and down the cloisters Alfus ran towards them, and called them; but none anwered He went closer, but not one of them could he recognise.

"Has there been a miracle here?" he cried. "In the nam



BROTHER ALFUS LISTENING TO THE SONG OF THE BIRD OF PARADISE.

"I don't know such a person," was the reply. Alfus rubbed his eyes in astonishment.

"Am I then mad?" he exclaimed. "Is not this the monastery of Olmutz, which I left this morning——"

The young monk looked at him.

of heaven, my brothers, has none of you ever seen me before Does no one know Brother Alfus?"

All looked at him with astonishment. "Alfus!" at last sai the oldest; "there was formerly a monk of that name at th convent. I used to hear the old men, long ago, when I wa

young, talking of him. He was a learned man, but a dreamer, and fond of solitude. One day he descended into the valley, and was lost sight of behind the wood. They expected him back in vain. He never returned, and none knew what became of him; but it is now a hundred years or more, since that."

At these words Alfus uttered a loud cry, for he understood it all; and falling on his knees, he lifted up his hands and exclaimed with fervour,—

"O my God; it has been thy will to show me my folly in comparing the joys of earth with those of heaven. A century has rolled over my head as a single day, while listening to the bird which sings in thy paradise. I now understand eternal happiness. O Lord, be gracious unto me, and pardon thine unworthy servant."

Having thus spoken, Brother Alfus extended his arms, kissed the ground, and died.

THE WARRIOR AND HIS SON.



FROM A PAINTING BY HILDEBRANDT.

For any one who wishes to observe the progress of art in Germany at the present day, Dusseldorf is undoubtedly the place which must possess most interest. It would seem that this beautiful town, by its very position, in the midst of a verdant and peaceful valley, close to the limpid waters of the Rhine, should inspire a love of nature and art. For more than a century and a half it has been in possession of a splendid gallery of paintings, containing numerous pictures by Rubens, many of the most remarkable works of the ancient German school, about five thousand original drawings, and several thousand very rare engravings. The Dusseldorf school of painting continues, with that of Munich, to occupy the highest place in German art.*

* The other schools are at Berlin, Frankfort, Vienna, Dresden, and Cassel.

It has produced many historical painters, as well as painters *de genre*, who have obtained great eminence in their several departments,—amongst others, Bendemann, some of whose designs we have already given in our first volume; Hübner, at present professor in the Academy of Dresden; Schrodler, who excels in comic painting; and Professor Theodore Hildebrandt, one of whose works we reproduce at the head of this article.

He was born at Stettin, in 1804, and commenced his artistic studies in Berlin. He chose the painter Schadon for his master, and followed him to Dusseldorf. Hildebrandt is an excellent colourist, and possesses exquisite taste. He has acquired great reputation in Germany as an historical as well as a portrait painter. Amongst his principal works are "Faust and Mephistopheles in the Grotto" (1824), "Romeo and Juliet" (1827), "Tancred and Clorinda" (1828), "Judith and Holophernes" (1830), "The Warrior and his Son" (1832), "The Sick Magistrate and his Son" (1833), "The Children of Edward" (1834), "The Tale-teller," "Christmas-eve," "The Brigand," and many others. The painting of "The Warrior and his Son," the figures in which are of life-size, recalls very much the manner of Vandyck; the child possesses great richness and delicacy. The subject is purely one of imagination. It expresses, under a more poetic form, an idea which the Greeks have often expressed under a symbolical form; the alliance of strength, and sweetness, of manly vigour, and infantine grace. This is one of the most popular paintings in Germany at the present day. It has been often copied and reproduced upon wood and porcelain.

Hildebrandt is still young; the rapid progress which he has made, and the celebrity which has already rewarded his efforts have excited his ardour, and we may doubtless still expect many works of still greater merit from him. Some German critics have compared the talent of this artist to that of Schnetz, the director of the Academy at Rome. "The works of Hildebrandt," says one of them, "without belonging to a very vast sphere, have all the seriousness of history. He is not the painter of one generation only; his works cannot succeed through the aid of fashion. He does not ever aim at the sublime. We heard him one day say that one should not attempt to outdo nature. But he is above familiarity; he tells a tale marvellously well; he is truthful without being prosaic; sometimes he exhibits great pathos; and passes alternately, and with equal success from *genre* to history."

HANS HEMLING, THE PAINTER OF BRUGES.

On the 16th of September, in the year of our Lord, 1478, the porter of the hospital of St. John, in Bruges, admitted to the care of the attendant nuns, a poor soldier, bleeding from severe wounds, and exhausted with fatigue and exposure. His feet were bare, and his garments tattered; yet there was somewhat in his appearance which betokened gentle birth, so that the assistants who bore him to a couch, did so with a tenderness seldom shown to patients of low degree.

Brother Jerome, the head physician, was soon occupied in examining the soldier's wounds. "A shrewd cut," said he, "this on thy head, my worthy fellow! That gash, I trow, was not made with a riding-switch. I must pain thee a little longer with my needle; canst thou endure it?"

"Als ikh kan," replied the soldier, half vacantly, and staring upward, he again repeated, Als ikh kan—*Als ikh kan!* (The Flemish words for "*I'll do my best!*")

"Als ikh kan!" chimed in Brother Jerome, addressing himself to sister Bertha, a lovely young nurse: "Ah, that is a sentence I never hear without a sigh. It is the motto of the great and glorious artist Johannes Van Eyck, who hath of late years brought into these our Low Countries the art of painting curiously in oil. And I sigh, my daughter, to think that, despite our most earnest effort, the hospital of St. John as yet contains none of his pictures. Did not the worthy Heer Ward-master himself, offer to sell his gold chain and seal to secure even the unfinished triptych of Our Lady, now in the church of St. Martinus Van Ypern? and even the chapel of the White Lady of Antwerp hath its picture by Van Eyck, while we of the first hospital can show nought save a barbarous Greek painting of Christ, and two beggarly saints by Meijster Hugo van der Goes! Well, well, fortune, like marrying, comes by tarrying."

Sister Bertha paid, however, but little attention to the regrets of the worthy brother. Her attention was too deeply absorbed by the features of the apparently half insensible soldier. That face was one of that rare description which indicated great firmness of character, combined with gentleness of heart. The embrowned cheeks, and sternly-compressed lips, spoke of weary wanderings in warmer climes,—of strife and toil. But the deep quiet intellect of the brow, with the soft and almost child-like gleam of the eye, denoted a soul which no sorrow or suffering could change.

Insensible as the soldier seemed, he had well marked the words of the brother, and the great beauty of the young sister. But the recollection of both was soon lost in the delirium which succeeded, during which he was carefully and gently tended by her. Soon he raved—at times in Flemish, at times in other tongues—of strange adventures in many lands—of the broad white foaming sea—of the storming and sacking of lordly cities—of the screams of maidens—of the burning of churches—of glorious paintings, marble palaces, and orange groves. Then he would burst forth into strange songs, and wild peals of laughter. Yet, all unmoved, the gentle sister sat by him, moistening his brow with water, and giving utterance to deep and earnest prayers for the health of his body and soul. When his speech became wild, she would lay her small white palm against his mouth, and say, "Peace, poor child, peace!" Then his voice would sink to a low murmur, and, with tears, he would half unconsciously join in her prayer to God.

With the following morning the effects of the fever had well-nigh passed away; and every succeeding day, to use a Flemish expression, "added fresh grapes to the vintage of his health." He was the favourite of all who knew him, though he very seldom spoke—he was so quiet, gentle, and uncomplaining. But his gaze was often fixed upon Sister Bertha, whose favourite spot for needlework or reading, when not otherwise engaged, was near his couch. To her quick woman's eye it was evident that a great change was coming over the spirit of her patient. Her silent beauty had indeed touched his soul, and deep regrets for his past stormy careless life were daily mingled with the aspirations of a deep and holy love.

But with his gradually-restored health, it appeared that a time was not far distant when he would be compelled to quit this haven of rest. More than one broad hint had been dropped by the Ward-master, and unwillingly repeated by Brother Jerome, that there were other sick in the world, and that his couch was wanted. More than once had an assistant inquired as to his future road, and begged to know if the "wander-penny," or gratuity usually bestowed on those leaving the hospital, should be taken out for him. At last, one morning summoning the Ward-master, he said, gravely and earnest,—

"Heer Ward-meijster, it little beseemeth me, who have here experienced at your hands kinder and gentler treatment than any I have ever in my life before known, to crave longer lodgment than is my due. It were a sin to the good Hospital of St. John de Bruges, which is famed for kindness and charity, not only throughout the Low Countries and Germany, but even unto Italy and the Indies, should suffer by malapert indolence. You wish me forth—but I will *not* go until you are richly rewarded for your kindness. If this my couch be needed, give me, I pray, another room, where I may be alone and unheeded, save with some slight attendance; and if, in one month's time, every soul in this hospital, with yourself at the head, do not beseech me to remain, I give ye leave to drive me forth like a thieving knave, with hounds and whips."

To this modest proposition the Heer Ward-master willingly assented; and that very day the convalescent was removed to a distant chamber, where he dwelt in strict privacy. Only the sister Bertha, his kind nurse, approached him, or seemed acquainted with the nature of the pursuit in which he was so mysteriously engaged. By her aid he was silently supplied with all that he required. And thus days and weeks passed by.

"I wonder," said the Ward-master, one evening to Brother Jerome, "I wonder on what work the stranger hath been engaged. Perhaps he hath but rested with us that he might obtain longer *herberg* (lodgings). But let him go in peace."

"He is perchance an artist," replied Brother Jerome. "It remembereth me that his first word in the hospital was the notto of the excellent Johannes Van Eyck. But nay—what artist ever dragged himself, like a vagabond soldier, to these gates?"

"Ah!" replied the worthy Ward-master, "Heaven grant that he be an artist, even as thou sayest. Ah, Brother Jerome, the name of Van Eyck is a sore, sore theme to me!"

The Master was here interrupted by the beautiful Bertha, who bore a message from the soldier. "He desires," said she, "that on the morrow you, Heer Ward-meijster, assemble the chief lignitaries of Bruges, and repair to the room where he now dwells."

"A pretty business indeed!" replied the Master. "What! assemble his highness the Lord Governor, with my worshipful—Go to!"

"Nay, but Father," replied the maiden, "it must be even as he saith. For *I* have seen that which he proposeth to set before you, and it were not fit that lesser eyes should be the first to gaze thereon!"

"Then it shall be so!" replied the Master; "for thou art a wise and discreet maiden, and speakest well. Therefore, Brother Jerome, bid the messenger, Lodewyk, summon them, even as Sister Bertha directs."

"Gentle sirs," said the Ward-master, on the following morning, when the chief noblemen and burghers of Bruges had assembled; "if that which ye are to behold should prove a vain thing, I pray ye blame me not. On the word of a sister—albeit a maiden of discretion—have I called ye hither. Let us now judge of her wisdom."

With these words he opened the door of the chamber wherein the soldier lodged. As they entered, a simultaneous cry of admiration burst from the lips of all present. Upon a high easel was placed a painting, the like of which no man there present had ever seen before, though there were those among them who had been in distant lands where art was studied. It was an altar-piece in three divisions, the principal representing the marriage of St. Katherine. In the centre was a virgin of wondrous beauty, seated beneath a flowing curtain, while over her floated two lovely angels, bearing a crown. To the right knelt St. Katherine before the infant Saviour, who placed upon her finger the betrothal ring, and behind her an angel more beautiful than the light, playing upon an organ, and near him John the Baptist leading a lamb. Both the wings were filled in with scriptural figures; "the whole," says Kugler, in his History of Painting, "forming a work deeply inspired with sweet, mysterious, soul-refining poesy, and finished as to every mechanical detail, in the highest style of art which the world had then beheld."

"But where," inquired the Burgrave Vander Schilde, "where is the artist, who has thus combined in one work all the excellence of the Italian, the German, and Flemish schools of this age? Where is he, who, by a single effort, surpasses all that even Johannes Van Eyck, our lord of art, hath ever done?"

"Behold him," said Brother Jerome, leading forth the soldier, who, advancing to the Ward-meijster, exclaimed,

"Art thou now satisfied, good sir, for the soldier's lodgment?"

"Oh, my friend—my heart's friend!" replied the Master, his eyes dimmed with tears of joy, "be only our guest for ever. No noble shall be so cared for as thou. But oh!—who art thou?"

At this question, the artist pointed to the edge of the frame, on which was seen the following inscription:—

OPVS . IOHANNIS . HEMLING.
DIT· WERCK· DEDE· MAKEN· IAN· HEMELING.
VAN· DE· HOSPITALE· VAN· SINT· IANS·
IN· BRVGGHE· ANNO· MCCCCLXXIX.

(The work of John Hemling. This work did make John Hemling, of the Hospital of St. John, in Bruges, in the year 1479.)

"John Hemling!—Hans Hemling!" exclaimed the Burgrave, with astonishment, "Why, art thou not he who, three years since, under the name of *Giovanni il Fiamingo*, didst dispute so learnedly at the universities of Padua, Cracow, and Heidelberg?"

"Nay," said the Count Adolijn, "art thou not, rather, he who, as *Jean le Flamand*, didst so gallantly discomfit, at Calais, in fair duel, the roystering English blade, Harry Goreham, and then escape—albeit from the very midst of King Edward's army?"

"I have seen thee in Venice," added a graybearded councilman,—"and in those days thou wert the featliest gallant that ever wore Genoa velvet, or trod corantos with the blonde *Sioras* of the Lagunas!"

"Noble sirs," replied Hemling, "it matters little what I have been, since I now, thanks to St. John, am that no longer. Art and Religion shall henceforward alone claim me. Of you, worthy Ward-master, I crave only permission to tarry here a while longer, that I may honour yet more, with my poor skill, the kind hospital of St. John, where I have so greatly benefited both my body and soul."

And the artist remained—remained to paint those religious pictures which have inspired with the gentlest, yet most genial emotions, even the coldest French critics of this century. Pictures which drew from Arsène Houssaye the confession, that "Correggio, though elevated above Hemling in grace of form, was infinitely beneath him in expression; and that compared with him as a master of *religious* art, Raphael was a mere heathen, who beheld only a Fornarina beyond the grave;" and even the stern and accurate Fortoul declares, that if ever painter merited the honour of being considered as a privileged interpreter of Christianity, this was the man; and, inspired with the subject, exclaims, "Pious master! by exciting in the depths of my heart that secret sadness which comes to us from God, and recalls us to him, thou wert the first to make me feel and comprehend Art! Melancholy star of my youth, *thou* didst guide me in my travels and studies!"

But though the artist painted for many months, in silence and prayer, his mind still hovered about this world. In all his paintings there is one face of almost unearthly beauty, yet calm and gentle as the evening breeze. That face is Bertha's—his consoler—his love! And, in nearly every painting, he was wont to repeat his own portrait, attired, not in the dark gown which he now wore, but in the long gaberdine and crimson bonnet of the Florentines, which indicated clearly to the good Ward-master, that his heart yearned again for the bright skies and happy scenes of Tuscany.

Not long after this, it became known through the hospital and town, that sister Bertha had, by especial permission, been secularised, and returned to the world. And but a little time elapsed ere Hemling also quietly disappeared, leaving as a last gift, his greatest and most glorious work — a work for which kings have since offered their gold in vain—*the Shrine of St. Ursula*.

And whither did he flee, and who was the companion of his journey? Never again on earth did man hear of Hemling, the soldier-artist of Bruges, or Bertha, the nun; save that in after years there appeared in Spain, in company with a wife of wondrous beauty, a great artist, known as JUAN FLAMENCO, or John the Fleming, whose paintings were inspired with that strange unearthly loveliness, and were limned in the same sad, gentle spirit, which we find in the works of Hemling. Nor have those been wanting, even in the present century, who, inspired by the saint-like veneration in which his name is even yet held at the hospital, have more than intimated that an unearthly mystery hung over the artist. Of late years, *the initiated* in the school of Overbeck, at Rome, speak admiringly of a stranger who sojourned but a few days among them, and astonished all by his miraculous familiarity with the arts and artists of the olden time. Such questions, however, may be left.

For the true enthusiast in religious art, no other indication of the supernatural need be given, save that which beams from his every work.

TRAVELLING IN ARABIA AND RUSSIA.

"Travel," says Lord Bacon, "in the younger sort is a part of education; in the elder a part of experience." And no one who rightly estimates the advantages attending travelling can doubt the justice of the remark. If education be to *lead out* the mental faculties, what can so readily and so efficiently accomplish that purpose as bringing the mind into contact with new scenes, new purposes, new habits, new pursuits? The novelty which meets the eye at every turn awakens dormant energy, and quickens intellectual sluggishness, and the man grows wiser and better beneath its influence. Till lately the Chinese represented in their charts their own country as the only considerable object in the world; it filled the map, with the exception of some few islands in which they supposed all the rest of mankind to dwell; and this sufficiently accounts for the fact that Chinese travellers were but rarely seen. We know better than this—we know that



CAMELS IN THE DESERT.

our "nice little, tight little island" occupies but a very inconsiderable space, and that stretching out on every side, far away over the blue water, are lands full of interest and attraction.

The first efforts of European inquiry were all directed towards the East. The geography and statistics of Asia had made much earlier progress than those of Europe. The Arabians had been most accurate and detailed in their accounts of their own country; the Crusaders repeatedly traversed the same quarter; the fleets of Venice, Genoa, and Florence, had engaged in extensive commerce, and had organised a traffic to China and Hindostan. In addition to the Crusades, the ravages of the Mogul Tartars, which put not only Asia, but Poland, Silesia, and Hungary, in consternation, led to an acquaintance with the remotest parts of the East.

The sandy deserts of Arabia form one of the most remarkable objects of the East. From the hills of Omon, which appear to b a continuation of those on the other side of the Persian Gul as far as Mecca, the greater part of Negad is one prodigiou desert; while the most striking feature of Africa consists of th immense sandy plains which pervade its surface, the chief these by way of eminence being called Sahara, *the* desert.

The danger and the difficulties of a journey in the dese are still great, but not so great as in former times. To leave th common road and pass through the middle of the desert attended with peculiar risk. The country is almost entirel without water, not a tree is to be seen, nor a rock which can offe shade or shelter. A transparent atmosphere, an intense su darting its beams upon a ground almost white and commonly a concave form, like a burning-glass; slight breezes scorchin like a flame. Such is a faithful picture of the district. Mounte on the tall camels or dromedaries, the travellers pursue their wa fearing every moment that the deadly simoom should blast the with its scorching breath.

In the pathless desert, high mounds of sand, shifting with eve change of wind, surround the caravan on every side, and conce from view every other object. There the wind is of a surprisi rapidity, and the sand so extremely fine, that it forms on t ground waves, which resemble those of the sea. The waves r up so fast, that in a few hours a hill of from twenty to thirty fe high is transported from one place to another. The shifting these hills, however, does not suddenly take place as is sometim imagined, and is not by any means capable of surprising a burying a caravan while on the march. The mode in which t transposition of the hills take place is not difficult of explanati The wind sweeping the sand from the surface continually, a

at with an astonishing rapidity, the ground lowers every ›ment; but the quantity of sand in the air increasing as quickly successive waves, cannot support itself there but falls in aps, and forms a new hill leaving the place it before occupied ›el, and with the appearance of having been swept.

It is necessary to guard the eyes and mouth against the antity of sand which is always flying about in the air; and e traveller has to seek the right direction to avoid being lost in e windings made in the middle of the hills of sand which und the sight, and which shift from one spot to another so ten, as not to leave anything to be seen besides the sky and nd, without any mark by which the position can be known. ven the deepest footstep in the sand of either man or horse sappears the moment the foot is raised.

The immensity, the swiftness, and the continual motion of ese waves disturb the sight both of men and beasts, and they e almost always marching as if in the dark. The camel here ves a proof of his great superiority. His long neck, perpencularly erected, removes his head from the ground, and from the



RUSSIAN SLEDGE.

nick part of the waves. His eyes are well defended by thick yelids, largely provided with hair; the construction of his feet, road and cushion-like, prevents his treading deep in the sand; is long legs enable him to pass the same space with only half the umber of steps of any other animal, and therefore with less tigue, and these advantages give him an easy and solid gait, on a round where all other animals walk with slow, short, and ncertain steps. The camel is called the ship of the desert, a ame which it will well deserve as long as there are deserts to raverse and camels to traverse them.

Up, good sir, upon the back of this tall camel that Arab men ave ready for your service, the caravan is ready to start, the amel is kneeling for your more easy ascent; there, now you're p, be careful when your gallant charger erects himself to full roportion; there, now we are ready. A swarthy denizen of the lain leads the way, the few white tents are left behind, the oundless expanse is about us, around us, on the right-hand sand, n the left-hand sand, before us far away with nothing but the sky o meet it, sand, behind us, sand, and over us a scorching sun that eems to make the ground red-hot, that silences everybody but the Arab leader, who will relate, much to our discomfiture, some of the most wonderful adventures and melancholy histories that ever man yet heard. How caravans have been waylaid, and murdered in the desert; how men have lost their way on that illimitable plain, and have vainly sought to find it; how their skins of water have become at last exhausted; how the mirage has filled them with false hopes, by painting calm, still waters and green, beautiful valleys, which turned out to be nothing but parching sand; how water has been sought, and vainly sought; how black despair has come rushing on the souls of the lost men; how all that is known of them is that one escaped—*only one*—though fifty men had left in company; how fiery pillars have been seen, and sweeping simooms have ingulfed a host; how horrors have been multiplied, till we grow sick and weary, and there seems a melancholy in the desert and a gloom that we cannot dispel, the sandy plain becomes a sepulchre, death is our companion and stares us in the face. "Take care," one says, "or you will stumble over death's victim. Leave the road, you perish; follow the track of the caravan, and rotting carcasses are its milestones. Why is the voice of the caravan so hushed, and why do you urge your camel's speed? See your spirit is wounded; you are musing on a secret in your own breast, and yet it is known to all. Look at that horrid object that lies in your path, his head turned back, and his mouth wide open; he wanted water, death has mocked him and choked him with sand; he wanted air, the wind is laughing through his ribs; he struggled to reach his journey's end, and his feet are striking in the air." So we go travelling over the desert, hot and parched as the sand we tread, and think perhaps of the lines,

> "Should you ever be one of a thirsty band,
> With your head to the sun and your feet to the sand,
> Traversing the desert,—ah, then you may tell
> What treasures exist in the cold, deep well;
> Sink in despair on the red parched earth,
> And then you may reckon what water is worth."

This cool refreshing water from the skin is the most delightful draught we ever quaffed.

But we leave the East; sandy plains, and stately palms, and strange old cities, and swarthy Arabs, and camels, and drome-

daries, and turbaned heads, and mosques, and minarets,—all behind us, and exchange the red-hot broil for cold, piercing, ice-bound Russia.

Cold! the cold is so intense that we cannot tell by feeling whether we have hands or feet; so cold that rubbing snow vigorously upon the nose is the only way to keep that interesting feature from being frost-bitten outright; so cold that we wrap ourselves up in many coats, and cloaks, and coverings of fur, before venturing into the sledge, which is already waiting. The bearded Jehu is in his place, flourishing a thick, heavy whip, and making it crack sharply in the frosty air. All is prepared and away we go. Over the road with a wondrous celerity, sliding noiselessly over the thick snow, and scattering it here and there as the driver urges on his horses with an inexhaustible supply of words. A mare he calls *sudaruince*, or good woman; a tired horse he addresses as *stariti*, or old fellow; collectively he calls them *golubki*, or little doves: and still away you go, the bells tinkling, the driver shouting, the whip cracking, the snow flying away from post to post.

In order to travel post in Russia, it is necessary to have a padaroshna or order for horses, in which is inserted the name of the place to which you are going, together with the distance, and number of horses required. This document is obtained from the governor of the town the traveller is leaving, or at an office specially appointed for that purpose. On making the application it is necessary to produce the Russian passport, and a certificate from the police, stating that the applicant has satisfied all the claims of his creditors, if he have any. The greatest care must be taken of the padaroshna, as every postmaster requires to examine it before he will furnish horses, and should it be mislaid or lost the unfortunate traveller will have to continue his journey with a peasant's horses, subject to all his caprices as to charge, hour of starting, and distance of each day's journey.

And travelling in Russia has its dangers. In passing over the wide open country, whole packs of wolves have beset the traveller; and there is an instance recorded, in which a mother, to save herself from their attack, cast out her children one by one as the frantic horses dashed wildly onward.

Various are the modes which each nation has adopted for convenience in travelling. Skating has been successfully resorted to, and men have been known to proceed at a surprising rate. In Holland, when the canals are frozen over, the inhabitants, both male and female, mounted on skates, glide along with amazing velocity, often carrying heavy burdens on their heads. In Lapland fifty miles a day is a common rate of travelling in snow-skates. Sledging is practised in many countries besides Russia. The Esquimaux harnesses dogs to his sledge, and they render him efficient service; sleighing in the backwoods of Canada is a favourite amusement, as well as a convenient mode of travelling—there horses are employed to draw the sleigh; and in Lapland the reindeer renders invaluable service in sledge travelling.

In India oxen are employed in travelling, and are described as being by no means ungovernable; their ordinary gait is easy, and the animal is saddled like a horse. Coaches and chariots, carts and vehicles of all kinds, are drawn by oxen. In Persia oxen are chiefly reared as beasts of burden; but of all nations, the Hottentot derives the greatest amount of advantage from their use in that capacity. All the travellers in Central and Southern Africa describe this animal as employed for a variety of purposes; and the waggons they use at the Cape are drawn by oxen. The use of the elephant for riding, and also for drawing burdens, is much known in the East; and many European travellers have given descriptions of the arrangement connected with the employments of this animal. The camel and the dromedary render an amount of service which no other animal could supply in the hot sandy districts. The ass, as well as horses and mules, is employed by the Egyptians, for riding through the narrow streets of Cairo, and in the old time they who rode on white asses were the great and good. The horse is employed in nearly every land, while the muleteer system of Spain is one of the peculiarities of that mountainous country.

Sedan or palanquin travelling is very common in the East, and from old Egyptian painters, it would seem to have been a very early practice. The Italians were among the first to use coaches huge Noah's-ark sort of contrivances, which have now given place to calessos. Vehicles called cavettas were used in this country as early as the thirteenth century. It is said by Stow that coaches were not used in England till the year 1555, when Walter Rippon made a coach for the Earl of Rutland. Their first introduction caused serious complaints from the watermen of the Thames, who found their trade falling off as the new conveyance became popular. It matters little now when stage-coaches were introduced, how they were constructed, or how long a period they occupied in a journey from London to York: a mightier power is at work. The shrill whistle of the engine, the metallic network of broad and narrow gauge, have brought about a new era in the history of travelling; and as we are whirled over the country and houses, villages, fields, and rivers are passed like the wind we think with some sort of pity on those who, in the old time had to journey by the packhorse or the waggon, and a visit to some distant shire formed the great event of their lives.

The engravings which we present to our readers are from paintings by the justly-celebrated French artist, Horace Vernet. They need no comment. Each design is thoroughly characteristic, and marked by those striking peculiarities which distinguish the great artist.

THE JEWISH PEOPLE.

The Jews are no longer a nation, but they have not lost their nationality. They still preserve the distinctive characteristics of their race, and, in whatever country or in whatever station, exhibit the same deep, earnest love of their old home. While all that remain of other nations are a few lettered pages, or a few mouldered stones; while their greatness and their glory have been swallowed up, so that wolves howl where monarchs feasted, and wild flocks pasture where towered palaces arose,—the Jew preserves his old identity, and lives in the present a thing of the past. Encounter one of the Jewish people in one of the crowded thoroughfares of London, meet him in a Parisian square, on the Venetian Rialto, or in one of the quarters of the Eternal City; on the sunburnt coast of Africa, or amid the toil and traffic of New York; or in the busier scenes of Australian gold regions; and his peculiar countenance, his sharp piercing glance, tell unmistakably his origin, and you know him for a Jew as well as though you saw him mourning over the relics of his people's bygone glory, as well as though you saw him weep over the ruins of Zion.

In whatever light we view the Jewish people we cannot fail to be penetrated with feelings of intense interest on their behalf. They have ever stood forth conspicuously in the very centre of the world—a pharos, the light of which was reflected on the gloom of surrounding polytheism, superstition, and idolatry. While the Assyrians, the Babylonians, the Persians, the Romans, the Carthaginians, the Egyptians, the Goths, have each in turn played their part in the world's drama, and disappeared from the theatre of the world, the Jews still remain a people dwelling alone among the nations. For eighteen hundred years they have been in a state of oppression and exile, the objects, in many instances, of execration and scorn.

A wondrous history is that of the Jews. Far away in the past you recognise the father of the nation in old Abraham. The nomade condition of the people at that period is briefly told. It is more the history of a family than the history of a nation. Those men who are busy in rearing huge Egyptian structures, and are themselves cast down and held in brutal slavery, are the Jewish people. The wondrous doings of that wondrous time, the marching host that quitted a land of bondage to found a nation on another shore, are recorded with an eloquence almost as wondrous as the theme,—wandering after wandering, journey after journey, battle after battle, victory after victory, till the

and of Palestine became their home. The land was a holy and, the government a theocracy. But they grew weary of his government, and sought a king like the other nations. King means cunning—cunning man. Their roll of kings betrays no great sagacity,—

"Some good, some bad,
Of bad the larger scroll."

Every false step brought fresh disasters in its train; the people became weak before their enemies, and in the Babylonian captivity they hung their harps upon the willows, for how could they sing the Lord's song in a strange land? Our engraving represents a scene connected with that captivity. It is from a German picture by Bendemann; and German genius has exhibited itself in the bold outline, in the picturesque grouping, and in the characteristic features of the Jewish mourners. The old man leans forward, and holds the harp which once was sounded in the land of promise, the manacles upon his hands betray how severe is the bondage by which he is confined, and there is a shadow of the deepest melancholy on his aged features. Three female figures are about him. One with mournful glance clasps to her bosom a little child; another, with head bent forward on the old man's knee, seems weeping bitterly; there is an air of patient sorrow with the third which is more touching than any outburst of grief, and over the whole there is something of deep sadness which awakens a feeling of compassion for the Hebrew captives in that foreign land. We need not tell the story of captivity. Every Bible reader knows it. But the grief which marked the people then was only a specimen of what was to come. We read of the wanderer's return; of the ruined temple re-erected; the story of the Maccabees, of Antiochus Epiphanes; of the marvels which stirred the hearts of the people when Christianity appeared among them; of the revolt against the Romans; the fierce siege; the struggle without and the struggle within; the final overthrow of Jerusalem, and the destruction of the temple; and then again comes the dark, melancholy cloud, and Zion's song is hushed, except that here and there a plaintive strain arises from some Jewish home—homes of the wanderers scattered far and wide.

A story of glory and shame, of joy and sorrow, of sunshine as well as darkness, is that of ancient Judaism, but all glory and joy and sunshine are taken away from their modern history. There is still at Rome a triumphal arch, erected when the captive Jews were brought thither by Titus,—an arch, on which is sculptured the Roman soldiers, carrying the golden candlestick, table of shew-bread, and other vessels of the Tabernacle. The Jews were the builders of the Colosseum, and the first victims slain within its walls. Held in detestation of all nations, persecuted on ground-less charges, victims of popular fury, as well as of legal injustice, hanged, burned, tortured to death; the history of the Jews is a martyrology, and their preservation a miracle.

In England, but a few centuries ago, the most extraordinary notions were entertained respecting the practices of the Jews. Old Chaucer appears to have believed that the Jews were capable of any cruelty, and we must remember, that he only represented in this matter the popular opinion; in his time it was thought a good Christian thing to spit on a Jewish gaberdine. In the "Canterbury Tales," he makes the prioress relate that in an Asiatic city, where there was a "Jewerie," a place where Jews dwelt, that a child having to pass this place on his way to school, gave high offence by singing

"O Alma Mater redemptoris;"

for which they fell upon him and put him to death, but the words of the song were still continued from the pit where his strangled body was hidden: search was made, the murder was discovered, and then—

"With torment and with shameful death, each one
The provost these Jews did serve,
Which of the murder wist.
Therefore with wild horses he did them draw,
And after that he hang'd them by the law."

At the close of the poem Chaucer refers to another case; exclaiming—

"Oh, young Hew of Lincoln! slain also
By cursed Jews, as it is notable,
For it was but a little while ago."

These accusation were not uncommon, the people entertained a horrible belief that the men of the gaberdine were willing to commit any amount of treason against common humanity; that they were in the habit of stealing away and murdering Christian children, in order to use their blood as leaven, in preparing some of the substances to be eaten in the course of their rites. Marlow, the old dramatist has given us a fearful autobiographical sketch in the character of Barabbas, the Jew, when he makes him say—

"As for myself, I walk abroad a nights,
And kill sick people groaning under walls;
Sometimes I go about and poison wells:
And now and then, to cherish Christian thieves,
I am content to lose some of my crowns,
That I may, walking in my gallery,
See 'm go pinion'd along by my door.
Being young, I studied physic, and began
First to practise upon the Italian:
There I enrich'd the priests with burials,
And always kept the sexton's arms in use
With digging graves, and ringing dead men's knells.
And after that I was an engineer,
And in the wars 'twixt France and Germany,
Under pretence of serving Charles V.,
Slew friend and enemy with my stratagems.
Then after that I was an usurer,
And with extorting, cozening, forfeiting,
And tricks belonging unto brokery,
I filled the gaol with bankrupts in a year,
And with young orphans planted hospitals,
And every moon made some or other mad—
And one would sometimes hang himself for grief,
Pinning upon his breast a long great scroll,
How I with interest had tormented him."

These were the sentiments and these the doings which men in Marlow's day ascribed to Jews. Shakspeare in his Shylock panders to this prejudice; the story of the pound of flesh was the sort of thing that men believed respecting Jewish dealers. The character of his Jew arouses in our minds an instinctive aversion, although we may have some pity for the man: but Shakspeare's Jew was spotless innocence compared with Marlow's.

When the flower of European chivalry left their own lands and started forth to do battle with the Turk, the Crusaders' swords grew red with Jewish blood. The knights commenced their labours for the Cross by massacreing the Jews in every city through which they passed. Conversion or death were the alternatives proposed. Cologne, Worms, Treves saw the fearful work begun. A band of Jewish women at Treves went to the banks of the blue Moselle, and having loaded their clothes with stones, threw themselves into the river and perished. While the crusading mania lasted, many similar scenes occurred.

At the coronation of Richard I., orders had been given that none of the Jewish race should approach his palace. Ignorant of the order, some of the leading men went to the spot with presents for the king. A riot ensued. A rumour spread that the king had sanctioned a massacre of the Jews throughout his dominions. The imaginary order was put into operation. From city to city the blood-news went; the most deplorable scene of all took place at York. There the Jews shut themselves up in a tower, and were besieged by the populace. Finding no means of escape, they resolved to fall by their own hands. Each head of a family took a razor, with which he slew first his wife and children, then his domestics, and finally himself. Either in this fearful manner, or by the hands of the populace, every Jew in York perished. Still later, seven hundred were slain in London because a Jew had demanded exorbitant interest. In 1274 every Jew who lent money on usury was compelled to wear a plate upon his breast signifying that he was a usurer, or to quit the realm; in 1277, two hundred and sixty-seven Jews were hanged and quartered on a charge of clipping the coin; the same year, upon a pretence that a Christian child had been crucified at Norwich, fifty Jews were hanged, and every synagogue destroyed; in 1287 all the Jews in England were

apprehended in one day, their goods and chattels confiscated to the king, and they, to the number of 15,660, banished the realm. They remained banished 364 years. England is in this matter a fair sample of other countries. In 1394 they were driven out of France; in 1492 were banished from Spain; against them the Inquisition was first established. Recent times have seen the grossest cruelties enacted against them in the face of all reason and justice. The old prejudice still to some extent influences the public mind, though no fire or sword are employed, they are still under the ban of the law; until comparatively lately were rendered incapable of the privileges of citizenship, and even now are denied some of its advantages.

A byeword among the nations, the Jewish people have been preserved amid all the agitation and tumult of the world. There is something very striking and impressive in the idea. The legend of the wandering Jew seems but a type of the nation:—



THE HEBREW CAPTIVES.

"And eighteen centuries now have sped
On the dark wrecks of Rome and Greece;
They have seen the ashes scattered
Of thousand shifting dynasties;
Seen good, unfruitful good, and ill
Prolific, while the tempest roll'd;
Seen two new worlds the circle fill,
Which one world occupied of old.
Ever, ever
Earth revolves—they rest them never."

Jews have been compelled to turn their attention to the accumulation of money. In every age they have been celebrated for their wealth. Rich as a Jew has become a proverb. Their supposed wealth has brought upon them cruelty and persecution. Their real wealth is a known fact. But modern Jews can do something more than make money. The melting music of the "Midsummer Night's Dream;" the melancholy strains of "Elijah;" the solemn music of "Paul," owe their origin to Felix Mendelssohn —a Jew. Who has not been enchanted with the beautiful fictions of lyric poetry, and charmed with the graceful melodies of Heine? The pictures of Bendemann, the Jew—from one of whose masterpieces our illustration is taken—are described by connoisseurs as worthy of all praise. Liberty has found a free spoken apostle in the Jew, Boerne. Rossini was a Jew; Meyerbeer, a Jew;—there is an earnestness, a spirit of poetry and melody in the outcast people, that will still do greater and mightier things.

The world owes much to the Jews. They were the librarians of its revelation; in their laws we recognise the grand outline of moral obligation; in their poetry we find the highest excellence; and in their ethical aphorisms a body of the soundest practical wisdom. There are deeper obligations which we owe to the Jews. Christianity was originally founded, professed, and propagated by them. There are glories yet in store for that people. Their history is yet to be eventful. There is a bright light resting on the future—a haven across the melancholy seas—a haven they must reach at last. All history is something more than a record of facts. The facts of history are connected; and to trace and expound the principles of this connexion, to exhibit history as one organic whole, is the highest office of the historian. Nowhere is this connexion better seen than in the annals of Judaism.

According to the most recent and exact statistics, the Jews number at this moment very nearly the same as when they left Egypt under Moses—somewhere about three millions and a half. They have used every dialect, have wandered on the banks of the Nile, by the waters of Babylon, the Jordan, the Tiber, the Thames, the Mississippi; they have mingled but never united with other nations; arms, climate, genius, politics, cannot explain it, we turn to their own records to find out the cause—their history is prospective as well as retrospective, and leads us forward to a time when their wanderings shall be over, and they shall recognise in HIM whom they now reject the brightness and glory of their race.

There is evident purpose in the preservation of the Jews. We disregard the idle curl of the wave, but when every wave is moving in the same direction, when the tide is clearly seen at work—we find a law of nature, we seek a cause and find it in the skies. So is it with all history—but more especially in Jewish records, old and new—there is design in them all—every circumstance is connected—it is no chapter of accidents, but the development of a great and glorious plan.

JOHN GASPAR GEVARTIUS, LL.D.

[T is in the power of a skilful painter to confer a species of mmortality upon persons who would otherwise be known by few beyond their own circle. This is the case with the learned loctor now before us. Thousands, yea hundreds of thousands, nave gazed with admiration upon the inimitable portrait of him n the National Gallery, who would not have known that such an ndividual had ever existed, but for this specimen of Vandyck's kill. John Gaspar Gevartius was born at Antwerp, in 1593.



FROM A PAINTING BY SIR A. VANDYCK, IN THE NATIONAL GALLERY.

le acquired the first rudiments of science in the Jesuit's College Antwerp, and afterwards pursued his studies at Louvaine and Douay. Leaving the latter place, he removed to Paris, where e resided for some years, applying himself diligently to literary ursuits, cultivating an acquaintance, by friendship or by con-oversy, with the most eminent scholars of the age. In 1620 he turned to Douay, the university of which place conferred upon im the degree of LL.D., in 1621. He afterwards returned to is native city, and was elected town-clerk. He devoted much of his time to literary pursuits, and published *Lectionem Papinianarum Libri quinque in Statii Papini Sylvas;* also, *Electorum Libri tres, in quibus plurima veterum Scriptorum loco obscura et controversa explicantur, illustrantur, et emendantur.* He also acquired the reputation of a poet by the publication at Paris, in 1618, of a Latin poem on the death of Thuanus, the eminent historian. Though little is now known of his works, yet, as a scholar and a wit, he was considered as an ornament to the age in which he lived. He died in 1666, in the 73rd year of his age.

The portrait of Gevartius in the National Gallery, an engraving from which is now before the reader, is greatly admired, both on account of its intrinsic excellence, and as being a fine specimen of Vandyck's skill. It has been said by eminent critics, that however Vandyck might shine in historical composition, his strength lay in portrait painting. We do not propose to decide this controversy: it is certain that some of his historical compositions have rarely been excelled; and it is a fact that the intelligent eye

of his renowned master, Rubens, discovered in Vandyck ability sufficient to assist him in executing numerous commissions, and that he brought forward works after several of his master's designs, to a point which required little more than the ultimate touches of the master himself.

Concerning Vandyck's portraits, however, but one opinion is expressed. It is acknowledged by all competent judges, that in that branch of painting he has displayed extraordinary ability. He had evidently a thorough knowledge of the *chiaro-oscuro*, and his colouring approached the delicacy and purity of Titian, whose works he had studied deeply. His heads have an inexpressible grace, the intellectual character of the individual represented being made apparent to the beholder. Where hands are introduced in his portraits, they are beautiful in form, and exact in proportion. His attitudes are easy and natural; and his draperies, where not too much confined by the mode of the times, are broad and simple in the folds, easy and natural in the disposition, and sweet and harmonious in the colouring. In these points, and in all the accessories, he was superior to his *beau ideal* Titian, and in the majority of his portraits more delicate in touch, graceful in idea, and true in expression, than his great master, Sir Peter Paul Rubens.

The portrait is painted in Vandyck's best manner, and has justly been held in high estimation. The face is admirably drawn; the features are full of character, "the swimming moisture of the eyes is quite illusive," and the colouring is soft, transparent, and glowing. It was brought to England by Mr. Bryan, and sold by him to Mr. J. J. Angerstein for £357. It was afterwards purchased, with the whole of Mr. Angerstein's collection, by the government, and became the appropriate nucleus of the National Gallery.

*** We have spoken of the above, in accordance with the common belief, as the portrait of Gevartius; but Mrs. Jameson, in her "Handbook to the Public Galleries of Art," throws great doubt upon the truth of this belief, and maintains that it is in in fact the portrait of Cornelius Vander Geest, a celebrated amateur in art, and an intimate friend of Vandyck and Rubens.

BRITISH FISHERIES.

The vast ocean which covers so large a portion of the globe, with its hills and valleys, is peopled by an innumerable multitude of fishes, which congregate like mighty nations in certain regions more favourable than others to their numbers and to the enjoyment of the life which the Creator has conferred upon them. Great and wonderful are the varieties of the finny tribes. About 1,500 species are now known, of which about 200 are found on the coast and inland waters of Britain; and it is probable that many more are yet to be discovered. Little can be told of their modes of living, their antipathies and pleasures, their migrations, their habits and pursuits, the relations of the sexes, the manner of bringing forth, &c., as they live and move in an element which to a large extent baffles the investigations of the naturalist. Contrasting fishes with birds, Baron Cuvier says,—"The inhabitant of the water does not attach itself. It has no language, no affection; it does not know what it is to be husband and father, or to make an abode for itself. In time of danger it hides itself under the rocks of the ocean, or rushes down into the depths of the sea; its life is monotonous; its voracity leads to its sole employment, and it is only thereby that we are able to direct its motions by certain signs from above. Yet these beings who possess so few enjoyments have been adorned by nature with all kinds of beauty, variety in their forms, elegance in their proportions, and diversity of colour. They have everything to attract the attention of man, and it seems that it was this attention that nature was desirous to excite. Reflecting the lustre of every metal and precious stone, refracting the colours of the rainbow, in bands, in spots, in undulating, angular, but always regular and symmetrical lines, in shades admirably arranged and contrasted; for what purpose have they received these gifts?—they who hardly see one another, in depths where light can scarcely penetrate, and who, could they gaze on one another, can scarcely be supposed to feel any kind of pleasure by relations thus established."

Certainly not the least marvellous thing connected with the wonderful works of God, is this lavish display of *beauty* where there is no taste to appreciate, and not even a human eye to admire. But without dwelling on this subject, we proceed at once to notice the use to which man has turned the living treasures of the deep. Various kinds of fishes adapted for human food appear in vast shoals in certain seas and along certain coasts, and these have been called "fishing-grounds." There they are taken in large quantities, and the places are therefore called *fisheries*. The right of frequenting these regions for the purpose of fishing has been often a matter of dispute between nations, sometimes leading to warlike preparations, like those of our own country and the United States at present. Treaties to protect them from invasion or trespass have been formed between governments in different ages. Our own government has laboured to stimulate the fishing trade, and to protect the fishing interest by the most exorbitant bounties, which invariably failed in their object. In the time of Elizabeth and subsequently, the now vulgar trade of fishing was pursued under royal and aristocratic patronage. Charles II., in 1667, appointed a "Council of Royal Fishery," to which the duke of York, the earl of Clarendon, and other distinguished personages were named, with powers to make laws for the management of the trade, and to punish any persons who should offend against them. For further encouragement, a lottery was granted for three years; a collection was made in churches; exported fish was exempted from duty, and all victuallers and coffeehouse-keepers were compelled each to take a certain number of barrels yearly, "until a foreign market should be established to the satisfaction of the council." This was protection enough in all conscience; but in addition, the noble monopolists of the herring trade, were enabled to impose a duty of 2s. 6d. per barrel on foreign herrings imported, and they were to receive "all such other advantages, as experience should discover to be necessary." Yet, with all these encouragements the "Council of Royal Fishery" failed utterly, after an experiment of sixteen years, when a charter was granted to a new fishing company. This was also a dead failure, and was dissolved by act of parliament in the reign of William III. Similar efforts in 1720, and 1750, were equally fruitless. Many reasons were assigned for these failures, which a writer, named Andrew Yarington summed up in the following words:—"The fish intolerably dear, and the Dutch exceedingly cheap."

But the government, still wedded to protection, kept up the intolerable dearness and the artificial scarcity by its system of bounties. In 1749, as the result of a parliamentary committee of inquiry, a corporation was formed, with a capital of £500,000, under the title of "The Free British Fishery;"—and a bounty of 36s. a ton on all decked vessels of from 20 to 80 tons employed in fishing, was granted for fourteen years. This was increased first to 56s. per ton, and then to 80s., besides 2s. 8d. per barrel on all fish exported, and interest at the rate of 3 per cent. was secured to the subscribers, payable out of the customs revenue. Yet these inducements attracted only eight vessels to the fisheries. In one year the whole Scotch fishery brought in only four barrels of herrings, cured at sea; each of which, according to Adam Smith, in bounties alone, cost the country £159 7s. 6d. This is partly accounted for, by the fact, that the bounty was given for the *ships*, not for the herrings, and so "ships were equipped to catch the bounty, not the herrings." The bounties were reduced in the reign of George III. (1785-6), so that the whole payment was not to exceed 30s. a ton. On an average of ten years, 54,394 barrels were taken annually, at a cost to the government of about 7s. 6d. per barrel.

Another act for the regulation of fisheries was passed in 1808, by which the bounty was again raised to 60s. a ton on decked vessels of not less than 60 tons burden, with an additional bounty of 20s. a ton for the first thirty vessels entered in the first year. Besides this encouragement, premiums amounting to £3,000 were granted for boats of not less than 15 tons burden. This law, which was administered by seven commissioners, was renewed and made perpetual in 1815; and, in the mean time, the tonnage bounty had been extended to fishing vessels of not less than 45 tons burden. For the inspection and branding of herrings, the whole coast of Great Britain was divided into districts, in each of

which officers were appointed to oversee the operations of the shermen, and prevent fraud, in regard to the bounty. Yet, uring the year 1814, only five vessels had been fitted out for he deep sea fishery. The trade languished under the highest ounties, and became feebler the more it was stimulated. At ength the folly of this protective policy was seen and admitted. 'rom 1821 the bounties were gradually removed, and the trade hen left free to use its own energies rapidly revived. In 1842 he number of barrels of white herrings cured in Great Britain, so ar as the same had been brought under the cognizance of the ommissioners of the herring fishery (under 1 Wm. IV., c. 54.), vas, gutted and ungutted:—cured, 667,802;—exported, 248,789. They were exported to Prussia, and other parts of Germany, o Italy, France, the West Indies, and Mauritius.

In 1843 there were employed in the British herring fishery, 33 vessels of 7316 tons, and 1150 men, with 481,906 square ards of netting. Freed from the temptations to idleness and erjury attendant on the bounty system, the trade has not only evived, but the thrift and morality of the fishermen have greatly mproved. In Scotland they have been able, out of the fair profits f their business, to replace their small boats by others of larger limensions, and to provide themselves with superior fishing tackle.

In former times the fishing trade in general suffered greatly from vant of a ready market. But the facilities of a rapid communi- ation with inland districts and distant towns, by means of team, have not only added greatly to the profits of those who do business in the great waters," but conferred extreme enefit on society by keeping up a regular supply of fresh fish. In 1844 there was in London one dealer in fish to four utchers, besides the large quantities hawked about the streets. But in Warwickshire the proportion of dealers in fish to butchers vas then one to twenty-seven, and in Staffordshire one to forty- our. Since that time these proportions must have been greatly ltered, and the masses of the people in the midland and northern ounties have, no doubt, got into the habit of using fresh fish to large extent. On all the lines of railway, cod and salmon, rom Galway and Derry, are received in a few hours after they re caught; while the fishermen who chiefly supply the London narket, instead of returning to Gravesend, or other ports of the Thames or Medway, put their cargoes, already packed in hampers, n board the steamboats which pass along the whole eastern coas rom Aberdeen; or else they land their cargoes at Hull, or some onvenient port, whence they are conveyed by rail to London nd the great provincial towns. Our chief salmon-fisheries are n the rivers and estuaries of Scotland and Ireland. In 1835 he produce of the salmon fisheries in Sutherlandshire was 58,291 lb.; and of the Foyle, in Londonderry, 321,366 lb. They are packed in ice, a practice learned from the Chinese, and irst adopted about the year 1785. But even the ice would not ave the fish, if the transport depended on sailing-vessels, which ight be detained by contrary winds. This is one of the housand indirect ways in which steam has affected the civili- ation of the world, and the wellbeing of society.

The rental of the salmon fisheries on the river Tweed averaged bout £12,000 a year for the seven years preceding 1824. The Duke of Gordon received about £8,000 a year for a fishery on the Spey. About 2,500 tons of salmon arrive in London every year. The salmon fishery commences on the 1st of February, and ends n the 14th of September. The intervening period is called "close ime," and during this season fishing is prohibited under heavy enalties. Mackerel is taken in great abundance around all our oasts in spring and the early part of summer. As this fish will ot keep, it has the special privilege of being hawked about on Sundays. Vessels employed in fishing are licensed by the Com- missioners of Customs to prevent smuggling; and they are equired to be painted or tarred black.

The *stow-boat* fishery is peculiar. It prevails principally upon he Kentish, Norfolk, and Essex coasts, and its object is to catch sprats as manure, for which there is a constant demand among he farmers. According to the Parliamentary Committee of 833, this branch of fishing had much increased, and then gave mployment, on the Kentish coast alone, to 400 or 500 boats, which remain upon the fishing-grounds frequently for a week ogether, until each has obtained a full cargo. The *pilchard* fishery is carried on upon the coasts of Devon and Cornwall. There are about 1,000 boats engaged on it, and it gives employ- ment to 3,500 men at sea, and 5,000 men and women on shore. As soon as caught the pilchards are salted and pickled, and sent off to foreign markets, the exports averaging 30,000 hogsheads a year.

The great *cod*-fishery at Newfoundland was occupied by the Portuguese, Biscayans, and French, as early as 1500. In 1585 Sir Francis Drake seized their fishing vessels, and sent them to England, where they were declared lawful prizes. In 1616 the English had upwards of 200 vessels engaged in this fishery. Subsequently the trade there was carried on still more extensively by the French, who were said to have beaten the English quite; as a proof of which it was stated that Barnstaple and Biddeford, which formerly employed in this trade above 50 ships, did not then fit out above six or eight. In 1763, however, there were taken and cured by the English at the fisheries of Newfoundland 386,274 quintals or hundredweights of cod-fish, and 694 tierces of salmon, besides 1,598 tons of fish-oil. The value of the exports of fish from Newfoundland in 1832 amounted to £458,662; in 1837 to £531,921; in 1842 to £528,540, and with oil and seal skins to £839,260. Fishing is almost the sole pursuit of the settlers and traders in Newfoundland, which is surrounded with banks swarming with cod, salmon, and other fish.

There were disputes between England and the United States as to the right of fishing on the coasts of the British American possessions. In consequence of these disputes a treaty was con- cluded between the two governments in 1818 for regulating the fisheries along those coasts. By the first and second articles the inhabitants of the United States were to have for ever, in common with the subjects of Great Britain, liberty to take, dry, and cure fish, in and on certain portions of the coasts therein defined, but subject to the consent of the proprietors of the soil when the uninhabited districts should be settled. By the third article the Americans gave up all claim to take fish within three miles of any coasts, bays, creeks, or harbours, within the British dominions in America, not included in the limits defined. This treaty has been disregarded by the American fishers in some instances, owing to a misunderstanding of its terms. The Americans allege that they have a right to enter *bays* if they keep three miles from the shore. But if this were the meaning of the convention, the specification of "coasts, bays, creeks, *or* harbours," would have been quite superfluous, as the liberty would have been sufficiently conveyed in the simple phrase "within three miles of the coast." It may be a hardship to be excluded from bays which are as large as seas; still it can never be successfully maintained that parties who bind themselves not to go within three miles of a bay, have a right to sail into its centre and within three miles of its shore. The line which defines a bay, and cuts it off from the ocean, is supposed to pass from headland to headland. In 1843 the United States government acquiesced in this view of the case. Since then, Lord Aberdeen granted some temporary concessions; —and recently, the aggressions of the American fishers have been the ground of serious complaints on the part of the population of the British provinces, in consequence of which, Lord Derby's government has sent out a squadron to enforce the treaty, and several American vessels have been seized. The limits were, in the words of the convention as follow:—"That part of the southern coast of Newfoundland which extends from Cape Ray to the Ramean Islands, on the western and northern coasts of said Newfoundland from the said Cape of Ray to the Quirpon Island, on the shores of the Magdalen Islands, and also on the southern coasts, bays, harbours, and creeks from Mount Jolly, on the southern coasts of Labrador, to and from the Straits of Belle Isle, and thence northwardly indefinitely along the coast, without pre- judice, however, to any of the exclusive rights of the Hudson's Bay Company; and that the American fishermen shall also have liberty for ever to dry and cure fish in any of the unsettled bays, harbours, and creeks, of the southern part of the coast of New- foundland here above described, and on the coast of Labrador: but so soon as the same, or any portion thereof, shall be settled, it shall not be lawful for the said fishermen to dry or cure fish at such por- tion so settled, without previous agreement for such purpose with the inhabitants, proprietors, or possessors of the ground."

THE SCIENCE OF PLANTS.

The *stem* is that part of the plant which, rising above the ground, supports the leaves and the flowers. Some plants have no stem, and are, therefore, denominated *stemless;* others have a soft stem, which, after the first fruit is perfected, decays, and is named *herbaceous;* while others have a hard *woody* stem. When plants are small they are called *shrubs*, and when large, *trees.*

The following parts are distinguishable in the woody stem :—



The *epidermis*, or external, thin, filmy covering; the *cellular integument*, a thin layer under the epidermis; the *outer bark*, generally of a brown or gray colour; the *inner bark*, a whitish, soft, and very flexible part, lying under the outer bark; the *alburnum*, or layers of young wood next to the inner bark; the *duramen*, or hard wood, also in layers; and lastly, the *pith*, a white, cellular, spongy substance, occupying the centre of the stem. The stems of trees and shrubs growing in our climate are all of this kind. They increase in size by the addition of a new layer of wood to the alburnum, and of a thinner layer to the inner bark. It is thus between the wood and the bark that the substance is formed, which at first a clammy fluid, named *cambium*, is gradually organised, and converted into wood and bark.

Stems sometimes creep along the ground, or even just beneath it, sending up buds (fig. 17), which develop themselves into branches, at intervals. Of this kind is the *rhizoma*, or root-stock of most British Ferns, which in some species creeps above ground, and below in others. Again, the *runners* of the strawberry (fig. 18), are but trailing stems, which send down roots, and develop buds at intervals, and thus greatly extend the plant.

Many parts are commonly regarded as roots, which are in reality stems. Their position, whether above or beneath the surface is no criterion as to their real nature. Such *bulbous* roots for instance as the onion (fig. 19), hyacinth, and lily, are in reality underground stems

Some stems are very remarkable. Such are those of the bamboo, found in the East and West Indies, and America; when young they are almost solid, but as they grow older, they become hollow, except at the joints. "Some of the bamboos we observed," says Dr. Walsh, in his Travels in Brazil, "were of enormous size, and some of singular beauty. Of the first kind were many that measured two feet in circumference, sending out large lateral branches, and so tall as to resemble forest trees. Others of equal magnitude, without any branches, shot out a single stem, divided into regular joints, smooth, and taperi

a point, till they attained an immense height. Some were not thick, but ran up till they became so slender that they bent wn, gradually tapering to a very fine point as thin as a horse-ir, and waving across the road like long fishing-rods. I cut e of them, which had shot up from the valley below, about the ddle, where it was not so thick as my wrist. After carrying for some time in my hand, where it felt lighter than a cart-nip, I laid it along the road, and measured its length, when I

Fig. 17.



Creeping Stem.

nd it fifteen yards long, so that the entire plant must have n ninety feet, tapering and polished the whole way with the st exquisite finish.

Another kind was so prolific that it covered the whole face of the forest, climbing to the tops of the highest trees, l clothing them with the most exquisite verdure. Some-

Fig. 18.



Strawberry Runner.

ies it ran from tree to tree, covering the whole sloping surface a glen with a level, uniform curtain of the richest drapery. is vegetable substance is called "the grass of the thicket."

On examining the trunk or branch of an oak or an ash, we d in the centre, a mass of spongy lular substance, called *pith*. Around s, and inside of the wood, are placed a ies of spiral vessels and ducts, which stitute the *medullary sheath*. This nmunicates on the one side with the h, and on the other with the medul-y *rays*, leaf-buds, and veins of the ves. Next, we find the *wood*, con-ing of concentric layers, one of which formed every year; and which will be n represented in the figure, during a wth of six years (fig. 20). These ers are composed of cellular tissue, ody fibre, and ducts, and are traversed by the medullary rays

Fig. 19.



Bulbous Root.

composed of cellular tissue, and connecting the centre with the circumference.

The fully formed, or central layers, are called the *heart-wood*, and the exterior the *alburnum*. The *bark* surrounds the wood. This may be seen to have the same number of concentric layers on the wood; but of these, the hardest and most fully formed is exterior, and the youngest interior. The *liber* is that portion of the bark which is successively formed next the wood. Each concentric layer, whether of wood or bark, consists of two strata, the one of woody fibre and ducts, the other of cellular tissue, of which the latter in the wood is interior, and in the bark exterior.

Such are the appearances which take place in a great proportion of vegetables; and from the circumstance of their receiving their annual increase between the *outside* of the old wood and the *inside* of the old bark, they have been termed *exogens*, while their structure is described as *exogenous*. There are, however, some remarkable exceptions, caused by anomalous growth, and arising from the breaking up of the woody zones, their fusion, or their separation by layers of cellular matter—or by the constant extension of their stem into angles—or by the formation in the same stem of several centres of growth instead of one. But it is interesting to observe, that in all such cases, the first growth is *normal*, however anomalous it may afterwards become.

Fig. 20.



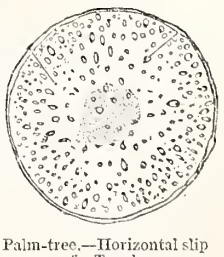
Oak.—Horizontal slip of a Trunk six years old.

There are other plants in which no such structure as that of the *exogenous* is apparent. In these the stem is formed of bundles of ducts and spiral vessels, interspersed through a cellular tissue; and this is surrounded by a stratum of cellular tissue and woody fibre, different from bark, inasmuch as it cannot be separated from the stem itself. Such is the structure of the palm; of which there is a representation in fig. 21. To this class of plants the name of *endogens* has been given, in conformity with which they are described as *endogenous*.

In each of these classes there is a *cellular* and *vascular system* distinct from each other. The former constitutes the general mass of the stem, the latter is found exclusively in a longitudinal direction, and seems plunged amidst the cellular, like roots in the earth. The *cellular* or horizontal system has therefore been aptly compared to the coarse threads or *woof* in linen, the *vascular* or longitudinal system to the *warp*.

Such then are the organs of nutrition in plants, as, in common with all living beings, they are entirely dependent on the supplies they obtain from without. Of the fifty-five simple substances into which the solids, fluids, and gases, of the inorganic world may be separated, vegetables are principally made up of four; and of these three only exist in any large proportion:—*carbon*, *oxygen*, and *hydrogen*; the fourth is *nitrogen*. The cells and vessels of plants, freed from their contents, are composed of a substance everywhere formed of the same elements: 24 carbon, 20 hydrogen, and 10 oxygen; without any nitrogen.

Fig. 21.



Palm-tree.—Horizontal slip of a Trunk.

Besides these elementary substances, which all plants contain, and of which the vegetable tissue may be regarded as essentially consisting, almost all of them have some mineral ingredients, the presence of which is necessary to their healthy existence. They remain as ashes, when the other parts of the structure are set at liberty by combustion:—the carbon uniting with the oxygen, and with some additional oxygen from the air, passes off as *carbonic*

acid; part of the hydrogen unites in the same manner with oxygen and passes off as *watery vapour;* thus entirely carrying off the oxygen; while the nitrogen unites with the remainder of the hydrogen to form *ammonia.*

THE LEAVES OF PLANTS.

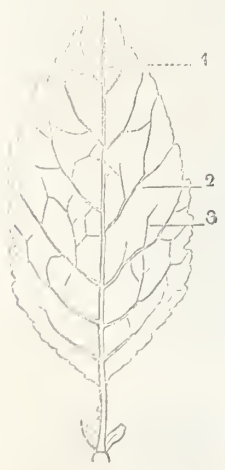
The nutritious fluid of the plant, like the blood of animals, requires exposure to the air, to preserve its power of maintaining life. But this cannot be effected either by the underground roots, or by the hard woody stems and branches, which expose so small a portion of surface to the atmosphere. This office is therefore performed by the leaves.

The foliar expansions of plants are of several kinds. The first to be noticed are the scales or winter coverings of the buds. They consist of dry, membranous scales seated at the base of the bud, over which they are *imbricated*, or overlapped, as tiles overlie each other on the roof of a house; and they are mostly deciduous when the bud bursts. They are generally covered with thick down; in others with gum, as the balsam poplar, or with resin, as in most of the order *Coniferæ;* without such a provision as this, all the buds of trees and shrubs where frost prevails would be destroyed; but such is the protection afforded by these scales, that they can bear thirty degrees of frost without injury.

In Sweden the budding and leafing of the birch-tree is taken as a guide for sowing barley, according to a suggestion of Linnæus, who recommended his countrymen to observe most diligently and carefully, at what time each tree unfolds its buds and expands its leaves; believing that they would, at some period or other, reap some new and perhaps unexpected benefit from observations of this kind made in different places. Mr. Harold Barck produced in consequence an ingenious dissertation on the foliation of trees in Sweden. Mr. Stillingfleet is the only person in this kingdom who has made similar observations on thirty-six of its trees and shrubs. The first in his calendar is the Honeysuckle, January 15th, and the last, the Canadian Poplar, April 22nd.

Leaves take their origin from the bark, and are always to be observed, either in a rudimentary or perfect state, immediately below the leaf-buds. The leaves of *deciduous* trees drop or wither as soon as the summer is over. Some shrubs and trees shed them in the second or third year, hence they are called *evergreens;* and the fir tribe retain their foliage for many years. In all cases the attachment is not very intimate; there being no connecting fibres or other vessels of a permanent character passing from the one to the other; all such being articulated at the junction, excepting only the palms, in the early stage of their growth, and all other plants having what are called spurious stems. A leaf consists of the *petiole*, the *lamina*, or limbs, and a pair of *stipules;* but sometimes only one of these three parts can be observed. The *petiole* is that which connects the lamina with the stem, and through it the bundles of ducts and spiral vessels pass before they branch out into the limb. In form it is usually cylindrical or slightly channelled above; but it sometimes happens that it is flattened, and presents on each side a foliaceous appendage, when it is said to be margined.

Fig. 22.



Cherry-tree Leaf.

The *lamina* is an expansion of the *parenchyma* of the petiole—a pulpy green substance, and commences where the bundles of vascular tissue that traverse the petiole begin to diverge from each other, and form what are called the *veins* of the leaf.

The *stipules* form a minor order of foliage, usually seated at the base of the proper leaves, in the near neighbourhood of the buds, to which, perhaps, they are in some way necessary.

The woody skeleton of the leaf (fig. 22) forms what is commonly known as the *midrib* (1), and the *veins* (2, 3) proceeding from it. These veins, or *nerves* as they are sometimes called, must not be confounded with similar parts in animals, since they do not in the least resemble them. They are principally compose of woody fibre, and of spiral vessels and ducts and they proceed from the neighbouring stem or branch, constituting the greater part of the petiole, or foot-stalk of the leaf from which they afterwards spread out.

The edges of leaves may be observed to be more or less indented, according to the amount of nutriment which the plant is receiving; while the general outline of the leaf, and the distribution of the veins continue the same. Thus, when the horse-radish grows in a sufficiently rich soil, the edges of its leaves are nearly smooth; but if the plant be ill-fed, the blade will be divided into separate strips, like the teeth of a comb, from a want of pulp to fill up the spaces between the veins. Nor is this a solitary instance.

Fig. 23.



The Iris.—Leaves.

The veins of a leaf are said to be *parallel* when, as they proceed along the leaf, they are at equal distance, the one from the other, and without any ramification. In this way their cause may be traced in the iris (fig. 23). But if the veins diverge from the midrib towards the margin, ramifying as they proceed (fig. 24.), the leaf is called *venous*, or *reticulated*, as in the melon.

"In every department of nature," says Mr. Kirby, "it cannot fail to strike us, that boundless variety is a characteristic and predominant feature of her productions. It is only when the object to be attained is dependent on certain definite conditions, exclu-

Fig. 24.



Melon Leaf.

ing the possibility of modification, that these conditions are uniformly and strictly adhered to. But whenever that absolute necessity does not exist, and there is afforded scope for deviation, then we are certain to find introduced all those modifications which the occasion admits of. Not only is this tendency to variety in the general appearance and form of the body, but it also prevails in each individual organ, however minute and insignificant the organ may seem. Even when the purpose to be answered is identical, the means which are employed are infinitely diversified in different instances; as if a design had existed of displaying to the astonished eyes of mortals, the unbounded resources of creative power. While the elements of structure are the same, the

presented to us in succession every possible combination of gans as if it had been the object to exhaust all the admissible rmutations in the order of their union." How these remarks e illustrated by the leaves of trees, we shall soon have abundant oof.

Fig. 25.

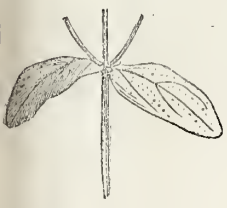


Hop Leaves.

If the blade consists of one piece only, the leaf is said to be simple, whatever may be the depth of its divisions, as in the hop (fig. 25). If, on the other hand, the petiole branches out, separating the cellular tissue into more than one distinct portion, each forming a perfect blade by itself, such a leaf is generally said to be *compound*, whether the divisions be two, or indefinite in number. The differences which prevail among leaves are, however, exceedingly numerous.

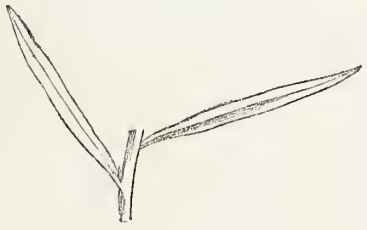
Sessile leaves are those which issue directly from the main stem or branch, ithout a petiole or footstalk (fig. 26). When the branch is cut rough horizontally, and only one leaf appears in the section, ie leaves were said by Linnæus to be *scattered*, or *alternate* ig. 27). More modern botanists have, however, observed that

Fig. 26.



t. John's Wort.—Sessile Leaves.

Fig. 27.



Toad Flax.—Alternate Leaves.

ese are primarily arranged regularly; but afterwards so many isturbing causes arise as to render their true disposition scarcely erceptible. By true alternate leaves ought to be understood ose only which are placed on two sides of the branch, in such a way that the third leaf is under the first, and the fourth under the second; and when such are close together they are said to be *distichous*.

Fig. 28.



Madder.—Whorled Leaves.

When more than two leaves are in the same plane, they are said to be in *whorls*, or *verticillate* (fig. 28). When they are in two rows at the right and the left, they are called *linear* (fig. 29), and *fasciculate* when they approach sufficiently near to represent a bundle (fig. 30).

Fig. 29.



Yew.—Linear Leaves.

Fig. 30.



Pine.—Fasciculated Leaves.

BED OF JUSTICE AT ARGENTELLES.

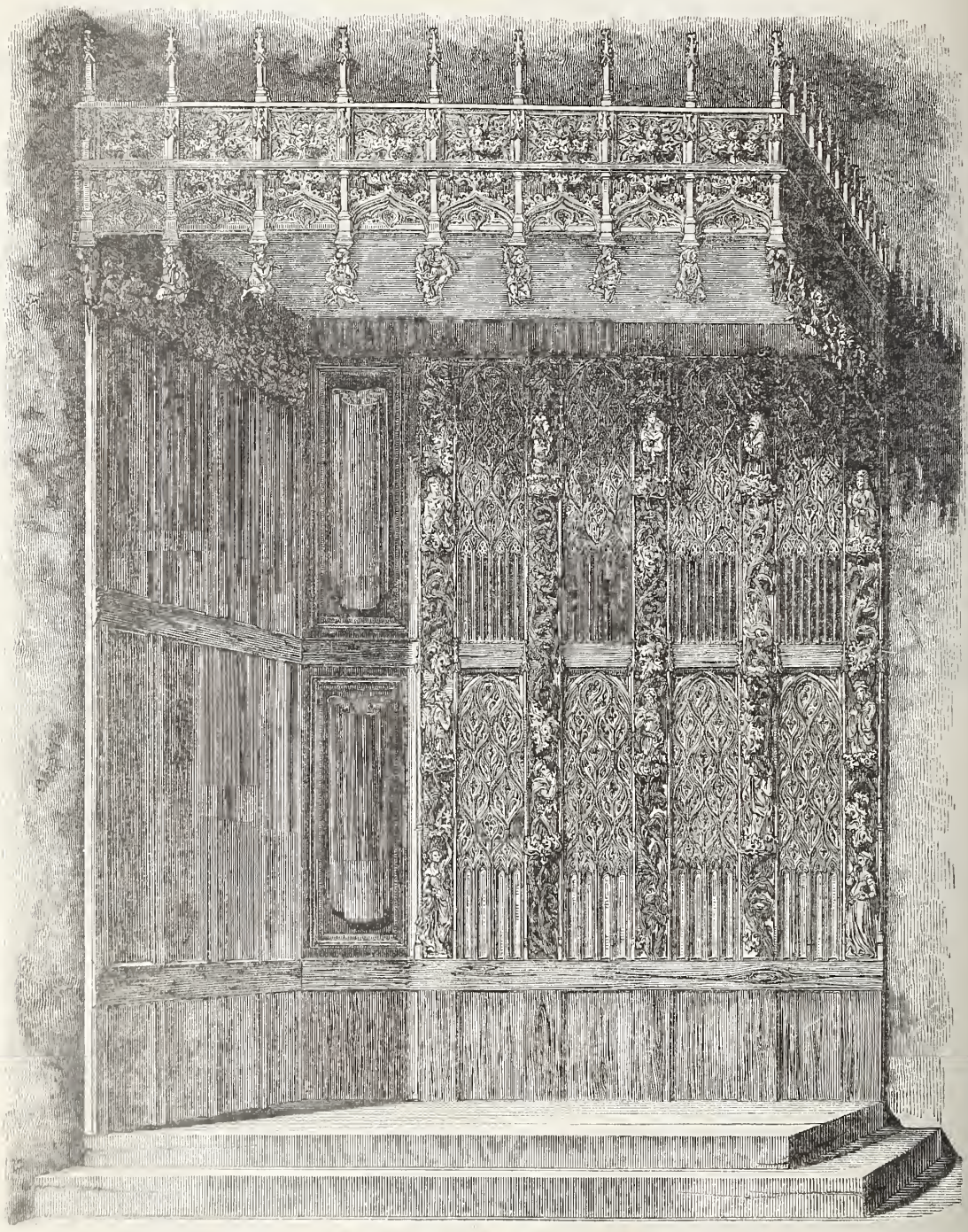
HE traveller who takes the trouble to climb as far as Exmes, in ie department of Orne, in France, by winding, hilly, rough, and arshy roads, hardly passable, will find himself well rewarded r his pains when, on arriving at the summit of the hill which owns the little town, he casts his eyes around him. On every de are immense meadows intersected by green hedgerows, with ere and there tall trees with wide-spreading branches, making ereby tempting retreats from the heat of the sun; and white and d, ruminating in the shade or galloping in the sun, great herds f cows, of immense size and admirable shape,—considering that ey are but French cows,—and horses from the neighbouring ables of Pin.

A little way down, half hid amongst the trees, may be seen e little turret of Argentelles. Farther on, to the left, the normous white donjon of Chamboy seems to monopolise all the nshine, so brightly and grandly does it glitter in the centre the plain; and beyond the view is lost in the distance over e towers of Argenton. Externally the castle of Argentelles by no means remarkable. It consists of a large quadrangular building with turrets at the corners, another tower enclosing a staircase, and a range of machicotation; it has little of ornament, and is by no means calculated for defence. It was built in the sixteenth century, and partially restored in the seventeenth.

It contains, however, one of the most curious pieces of wainscoting in existence, exquisitely finished and of rare workmanship. We give an engraving of it, not such as it now is, but such as it would be were the various panels of which it was composed restored to their places. It is a sort of dais, surmounted by little carved turrets, and placed in a corner of the apartment, so that only two sides are exposed to view, and no trace of any railing or balustrade can be detected. The two other sides are composed of panneling fitting down to the ground. The wainscoting at the back, in front of the spectator, was decorated with extreme richness. It consists of four small panels in breadth and two in length, eight in all, the former separated by admirable carving and the latter by simple crossbeams. The ornaments sculptured on the back of the panels belong to the pointed style,

which some have called the *Gothique flamboyant*, in consequence of the resemblance existing between its outlines and undulations and those of flame, and has been very much used in the decoration of windows and household furniture. Upon the mouldings, in the midst of fine leaves vigorously executed, may be seen a crowd of figures: some arising from the calyx of a fantastic flower, others full length and on foot, the Virgin and the infant Jesus, knights with their helmets on appearing to lift their hands and eyes towards Mary. Two women at the bottom alone seem foreign to the scene; the one plucks a grape from the vine, the other seems to be waving a kiss with her graceful hand; the figures of both are elegant and the costume simple, their hair fastened by a small cap or turban, their robes half open and falling back gracefully upon the shoulder.

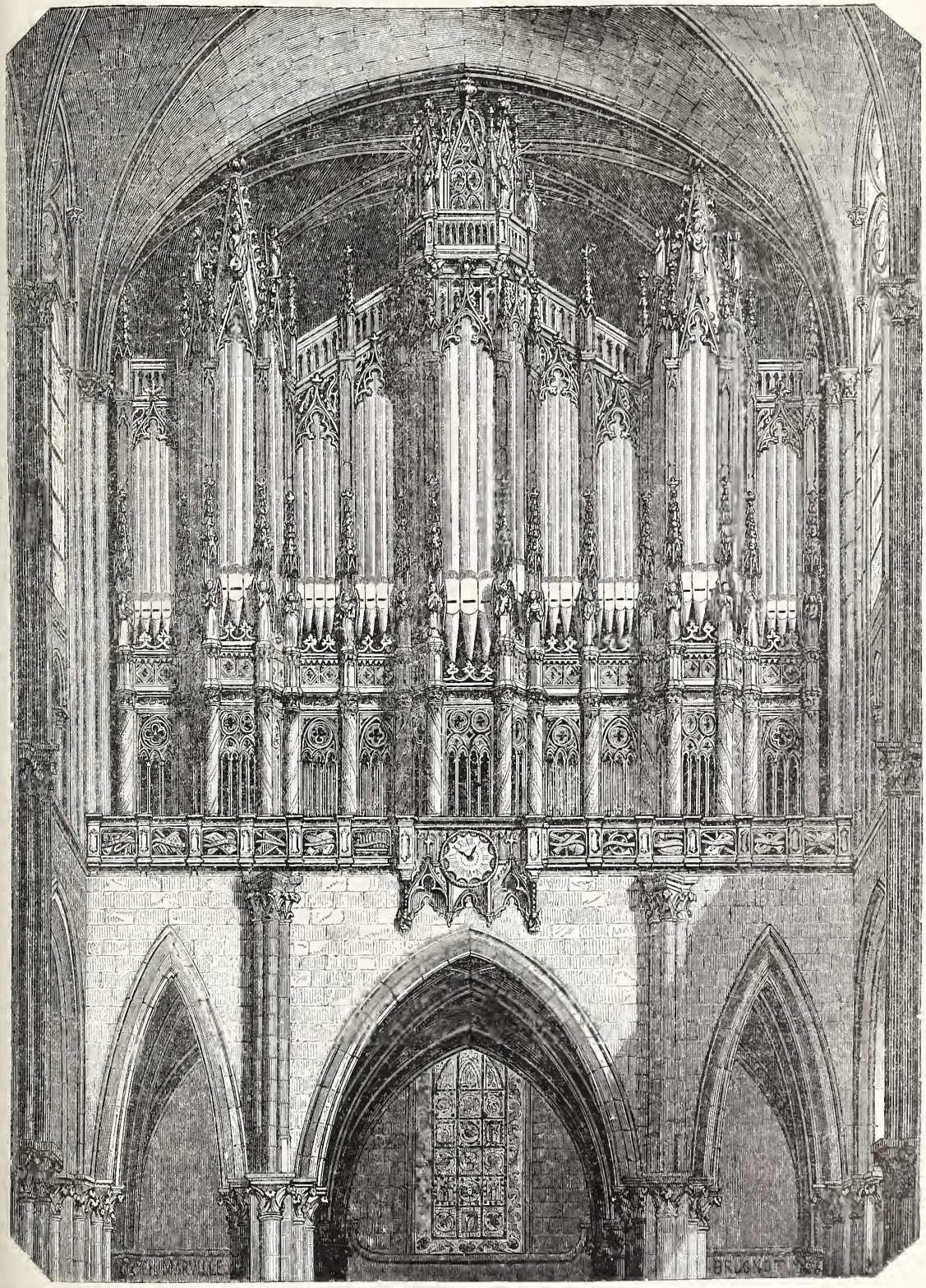
As to the dais and canopy, so rich and elegant, the turrets which crown the moulding display great delicacy of finish and much freedom of execution; the leaves which adorn the interior of the panels are fresh and vigorous, and the little figures on the pendants are admirable. Here is a king, with his crown on his head, striking furious blows with his great sword; there an old woman with a fool's cap and a distaff; then a musician playing on the trumpet; and then a juggler, his body doubled in two, and his feet touching his head. All these are done in the best possible style, without feebleness or want of steadiness.



"LIT DE JUSTICE," AT ARGENTELLES.

Of the origin of this curious relic nothing is known, nor yet of the use to which it was applied. It is called the Bed of Justice, probably from its resemblance to the king's seat in the parliament at Paris when he went down in state to enforce the registering of his edicts. It was doubtless a seat of honour; but for whom reserved, none know.

SOUND AND MUSICAL INSTRUMENTS.



GRAND ORGAN OF THE CHURCH OF ST. DENIS AT PARIS.

Sound, as most of our readers are aware, arises from vibrations of the air, diverging in waves from a centre, like the ripples on calm water when a stone is thrown into it. This may be made apparent to the eye by the vibrations of a musical glass when placed in water, and it may be felt by the vibrations of all instruments. It is the greater or less rapidity of these vibrations, within a given space of time, which causes the different degrees of loudness or intensity in sound. For example, we can distinguish a tone so low that the undulations number only 12¾ in a second, and so high that the undulations in the same space of time number 6,000.

Higher than this sound is but a monotonous roar to the human ear. Every sound is a mixture of three tones, just as every ray of light is a mixture of three primary colours. These colours, red, yellow, and blue, correspond to the primary sounds C, E, and G. The vibrations of C are 480, of E 300, of G 360.

All sound appears to be echo and reflection; in the real echo, the first sound is from near surfaces, the second from distant surfaces. When we speak of the report of a cannon "reverberating" amongst hills, we mean its reflection from surfaces more and more distant, until the vibrations cease to travel any further. Echoes are distinguished when the time between delivering a sound and its return is more than 1-12th of a second.

Sounds are more intense when the air is denser. In the Arctic regions persons can converse at more than a mile distant, when the thermometer is below zero. At the temperature of freezing 33° F., sound travels 1,100 feet in a second. For lower temperatures deduct, and for higher temperatures add half a foot. In a balloon the barking of dogs on the ground may be heard at an elevation of three or four miles; and on Table Mountain, a mile above Cape Town, every sound may be heard distinctly from below. The fire of the English when landing in Egypt under Sir Ralph Abercrombie was distinctly heard at a distance of 130 miles. These results may be all obtained with greater or less facility according to the state of the atmosphere.

From its greater density water is a better conductor of sound than air. In the former sounds possess twice the distinctness, and travel with four times the velocity that they do in air; but owing to the greater elasticity of the latter, sound moves round obstructions better in it than in water.

As might be expected from their greater density, solid bodies transmit sound better than either air or water. The scratch of a pin at one end of a beam is heard at the other, and it is believed that a bar of iron ten miles long would transmit sounds almost instantaneously. The ear is not fitted to receive two loud sounds in succession. In verses for music the syllables should follow in the same order of accents as the sounds. This is the secret of the success of Moore and Wolcot. The sense of hearing arises from an expansion of nerves into the inner chamber of the ear, and these receive the vibrations of the tympanum, a strained membrane. This elastic membrane is damped by a small bone, called the mallet; but like a drum it will not transmit to the brain two loud sounds in immediate succession. Observations can be made on the vibrations of sound by striking an instrument over a plate covered lightly with sand, in which the undulations become distinctly marked.

The organ is the king of musical instruments, as it combines the excellencies of every one of them. It is, in fact, a full orchestra of wind instruments, all supplied with wind from one pair of bellows. It has no restriction of scale, but may extend from the lowest to the highest musical note appreciable by the human ear. The deepest tones produced by the pedal pipes have been compared to "harmonious thunder," while the highest notes of the smallest metallic stops have the shrillness of a canary's whistling. The largest pipe expresses the size, as eight, sixteen, or thirty-two feet organs. That at Ulm, is ninety-three feet high, and twenty-eight broad; its largest pipes thirteen inches bore, with sixteen pairs of pipes. The great organ at Haarlem is 108 feet high, and fifty feet broad, with 5000 pipes, resembling columns of silver rising from the ground to the roof. It produces a tone of thunder. The organ of the new church at Amsterdam has fifty-two whole stops, besides half stops, and two rows of keys for the feet, and three for the hand, and a set of pipes that imitate a chorus of human voices. The famous Temple organ, in London, was erected by competition of Schmidt and Harris, two famous builders, and after long protracted disputes about their merits, the question was referred to Mr. Jeffries, afterwards chief justice, who decided in favour of Schmidt.

The following are some of the largest foreign organs:—

	Stops.	Pipes.
Seville cathedral	100	5330
Goerlitz, in Upper Lusatia	82	3270
Hamburg, St. Michael's	67	
Amsterdam	64	
Weingarten, in Suabia	60	6666
Rotterdam, 150 feet high		5500
Tours cathedral	60	
Haarlem	60	5000

Among the principal organs in England are those of York Minster, Birmingham Town Hall, St. Paul's Cathedral, Westminster Abbey, Exeter Hall, Christ's Hospital, and Mr. Willis's magnificent organ, which most of our readers may have seen in the Crystal Palace. Most of the early English organs were destroyed by the Puritans, and the remnant of the feeling which prompted this, still lingers among the Scotch Presbyterians who have not yet suffered any instrument to enter their places of worship.

The mechanism of the organ is complicated, and without the aid of illustrations (which we hope to call in on some future occasion), it would be impossible to give the reader an accurate idea of it. The principle is, that a number of pipes of various bores are ranged together. When the player touches a key, or a pedal, he opens a valve at the extremity of one of these. The air immediately rushes in, from the chamber in which it has been condensed by the bellows, and the interior of the tube is so arranged that it shall produce a certain definite note. Each stop is a particular set of pipes, differing in pitch, but all having the same character of sound. Some stops imitate the flute sound, some the trumpet sound, and so on.*

In connexion with organs, we may mention that church music was first systematised by St. Ambrose, at Antioch, and was afterwards improved by the chant of Pope Gregory I., about the year 690. The notes were letters over the syllables, but Guido d'Arezzo invented the gamut and musical notation in 1100.

Luther was the inventor of metrical psalmody, about 1517, and it spread with the reformation. The first tunes were popular airs and dances; the *Old Hundredth*, was a love ditty; *Rebuke me not*, was a jig; and *Stand up, O Lord*, was a Poitou dance. Gardiner, under the sanction of George IV. and Archbishop Manners, adapted 220 strains of Haydn, Mozart, and Beethoven, to as many of the best versions of the psalms. Madrigals, for four or five voices, were very fashionable in the seventeenth century, when Marinzio, Este, Morley, and Wilbye, composed those which are still such favourites, and are nightly sung at all the cheap concerts. Catches belong to the same period. Scotch music is referred to their James I. The tunes in which the 4th and 7th are omitted, seem to be formed from the Greek lyre of six or seven strings. They were first performed in a London concert in 1722.

The English excel in anthems, and Tallis, Bride, Farrant, Gibbons, Blow, Purcell, Wise, Clarke, Croft, Green, Boyce, and Nares, are celebrated. "But musically speaking," Gardiner observes, "England has not produced a single original idea." He ascribes the thoughts of Purcell and Arne to the Italians, and our grave church music to the Flemings. "God save the Queen," our most celebrated tune, is a prayer full of energy and fervour, the origin of which is unknown.

The English organ-builders far surpass their continental rivals in mechanical skill and delicate finishing, while in tone they at least equal them. One of the greatest achievements of the French organ-builders in recent times has been the organ of the famous church of St. Denis, which is now the finest in France. It took eight years in its construction, and was erected on the 9th of October, 1840, and inaugurated (the French "inaugurate" everything) in September, 1841. The bellows is composed of eight grand reservoirs, containing about 88,000 cubic feet of air. This enormous quantity of air is always ready to feed the instrument, and provide for the vast consumption occasioned by seventy stops, and about five thousand pipes, which give out such a volume of sound as shakes the church. Grand organs have usually six keys; that of St. Denis has but three. The designs of the framework are elegant, and in perfect harmony with the general decoration of the building. For more than fifty years previous to this, no organs of any size or importance were manufactured in France.

* Knight's "Cyclopædia of the Industry of all Nations."

THUNDER AND LIGHTNING.

Thunder has long been suspected, rightly or wrongfully, of all sorts of mischief, which has furnished innumerable little paragraphs to the newspapers, much relished by non-scientific readers. But in the following narrative read by M. Biot before the Academy of Sciences, and published by M. Leon Foucault, lightning is seen in the act of uncovering a passer-by, of rummaging in his pockets, of deranging his watch, and taking his purse, while leaving him his life. The fire of heaven would be a very dangerous footpad to encounter, if it should take to repeating such rascally proceedings, for all was done in an instant, a flash, the millionth of a second, and in a way which defies the vigilance of the detective police.

"About eleven o'clock in the evening of Monday, the 17th of May," says M. de H., "I was returning home by the *Rue Saint-Guillaume*, the *Rue de la Chaise*, and the *Rue de Varennes*, when a very loud thunderclap made me quicken my pace in the expectation of a very heavy shower very soon. I had scarcely taken twenty paces when a second thunderclap resounded almost at the same time that the lightning flashed. Large drops of rain began to fall: I was not more than two or three hundred steps from home, and I began to run. Suddenly I found myself enveloped in an effulgence so powerful that I felt a keen pain in my eyes. A frightful thunderclap pealed instantaneously, and my hat flew ten yards from me, although there was not a breath of wind. The pain in my eyes was so violent, and my fear of blindness so cruel that all my attention was turned to it; so much so, that I cannot say that I felt anything else than the electric shock, properly so called, which was not indeed in itself very violent. The last thunderclap was followed by a torrent of rain. The water which fell upon my head dissipated very quickly the giddiness and dimness which had lasted about seven or eight seconds, and my joy was so great in seeing, that I saw still quite well that I cleared very quickly and very joyously the distance which still remained to be run over to reach home.

"When going to bed I took out my watch, and then perceived the tracks of the electric fluid across the left pocket of my waistcoat. In the bottom of the pocket was a hole through which I could pass two fingers, of which the sides appeared to be at once burned and torn. The waistcoat was of cashmere, the lining of glazed cotton, and the second inside lining of cloth. As I ran to reach home before the heavy shower, my watch-chain formed in front a free circuit jumping over my waistcoat; the thunder was attracted there, probably by the middle, which was the lowest part of the curve, the part above being fixed to one of the button-holes of my waistcoat was not the least injured, whilst the swivel (*porte-mousqueton*), which held the watch, had disappeared with the first two links of the lower part. The swivel was of silver like the whole chain, but it was furnished inside with a small ferrule of steel necessary to give solidity to the screw. As for the chain it was solid, and made in the form of a curb. Here are the remainder of the effects which I experienced.

"A broken gold ring, which united several gewgaws, was cut in five pieces. The steel watch-key, covered with gold-leaf upon the cannon, was completely carried away, all except the gold-leaf, which remained intact. A little compass in silver had had its poles interverted. As for the watch, it had no exterior sign of having been injured, not even at the link whence the swivel of the chain had been torn. But although the time was only half-past eleven, the hands marked three quarters after four. Persuaded that the main spring or some other piece was broken, I left the watch upon the table, intending to go to the watchmaker in the morning. But in the morning I was advised to wind up the watch, just to see how far it was damaged; and I saw the hands move with a regular march, which never varied, as if the lightning at the same time that it displaced the hands had unwound the mainspring and conducted it rudely to the end of its course.

"Near the watch there was, on the day of the storm, a little iron medallion from Berlin, surrounded with gold, and a little gold key of a piece of furniture. These two objects disappeared completely, carried away, apparently, with the swivel through the hole made in the waistcoat-pocket. The chain, which had acted as conductor, did not retain any outward trace of the passage of the discharge. For myself, I felt, on the morrow, only an extreme lassitude, like that from unaccustomed and violent exercise, without any mark upon my clothes or upon my skin.

"I ought to notice here a peculiarity of my dress, which may not have been without influence in the production of these effects. I have contracted in Spain the habit of wearing upon my shirt and under my waistcoat a band of red silk, which went four or five times round my body. Did not this band preserve me by determining the passage of the discharge by the surface of my clothes rather than by the interior of my body?"

M. Biot read this statement before the Academy, and the objects injured were exhibited—the little silver compass and the empty golden envelope of the key. The tenour of the narrative, and the character of the learned man who read it, prove, says M. Leon Foucault, the serious exactitude of the facts, which he countersigns with confidence.

Certainly not upon evidence comparable with that which establishes the extraordinary narrative attested by MM. Biot and Leon Foucault, but on excellent and credible hearsay testimony, we think it right to record the following statement:—An American, who has the fact directly from an eye-witness, tells it us seriously. A stroke of lightning killed a man in a forest among the trees, and on his neck, on his white skin, there was distinctly and unmistakably seen a picture, with all their natural colours, of the trees through which the flash had reached him. It was just a photograph, with the natural colours. We tell the tale as it was told to us, with perfect confidence in the veracity of our informant. Mr. Talbot, the inventor of the Calotype, has produced a paper so sensitive, that, when he placed a column of the *Times* upon the rim of a wheel, and set it in rapid motion, he was able, notwithstanding in a dark room, to obtain a representation of several lines of the print in the instant occupied by the flash of an electric spark. But, should the fact we have narrated be examined, it may be found that the electrical power can display far greater marvels than have yet been dreamt of.

In a thunderstorm the clouds are mere nonelectrics, or conducting surfaces, positive with a negative sphere extending to the earth; and the discharge, at a point from one large surface to another, is the lightning; or the earth is negative, and the clouds correlatively positive. All bodies in the sphere of action are affected, and the stroke produces an extensive lateral action in all conductors, and affects all combinations of oxygen, &c., with weak affinities, such as beer, wine, &c., which require the protection of conductors. The cloud, the air, and the earth, resemble the zinc, fluid, and copper in a galvanic combination. The human body and all animal bodies are electrical, or galvanic combinations, and the excitement is the principal of vitality and energy. The surfaces positively excited are those of the lungs and the skin. The lungs fix oxygen and are positive, while the skin fixes an equivalent, and is negative. The circulations and secretions are intermediate results, and the action of the heart arises from the proximity of positive arterial blood with the negative venous blood. The action exhausts itself, as it ought, in the system.

Closed windows are dangerous during lightning, because the inner side of the panes acquire an opposite electricity to the outside, and then any conducting body is likely to concentrate the action on the inside.

Crosse enumerates the following circumstances which increase atmospherical electricity:—

1. Regular thunderclouds.
2. A driving fog and small rain.
3. Snow, or brisk hail.
4. A shower on a hot day.
5. Hot weather after wet, and wet after dry.
6. Clear weather, hot or frosty.
7. A cloudy sky.
8. A mottled sky.
9. Sultry and hazy weather.
10. A cold damp night.
11. North-east winds.

THE EGYPTIAN FELLAHS.

The incomparable fertility of the valley of the Nile has ever had peculiar attractions, and ever excited the desire for conquest in the minds of those, whose ambition it has been to extend the bounds of empire, and increase the number of their slaves. The people of Egypt, with their noble country, their abundant harvests, their treasures of mineralogy, their temples and palaces, have ungrudgingly given of their abundance to the world; they love their country, their date forests, their colossal architecture, reared when time was young, their Nile, with its annual inundations irrigating their fields, its banks covered with the blue lotus; and the mighty granite structures which separated them from the arid sand plains; Egypt, as his fatherland, is dear to the Egyptian.

"The soil of Egypt," the Egyptians were accustomed to say, "for three months in the year is white and sparkling like pearl; for three it is green like an emerald; and for three it is yellow like amber." Such was its fertility that it was regarded as the granary of the world.

But the character of the people is essentially pacific. They have no love for the glory of arms, and their enemies have experienced but little difficulty in overcoming them so ill able are they to defend themselves from predatory incursions. In the year 640-41, the hardy shepherds of Arabia became masters of Egypt; and since that period it has continued to be subject to Moslem rulers. Arab viceroys have reigned in the land of the Pharaohs; Turkish independent princes have held sway over Egypt; it has been governed by Arab khaleefehs; by a dynasty of Kurds; by Turkish and by Circassian sultans, who in their youth were mamlukes, or slaves; it has been annexed to the Turkish empire, and governed by Turkish pachas, in conjunction with mamlukes—and become a prey to the mamlukes alone. The French lily has conquered the crescent, France has wrested the government from the Turks, and the government has again been wrested by the English from the French, and so restored to the Turks. The history of Egypt is one continued struggle, with which the Egyptians themselves have had very little to do. The conquest of Egypt by the Turks under Sultan Seleem, in the year 1517, rendered the condition of the labouring population much worse than it formerly had been. The Turks had no notion of cultivating the land, and, therefore, treated with extreme rigour the agricultural classes whom they compelled to labour so unremittingly, that they were reduced to the most abject state of slavery. Egypt was then divided into four-and-twenty provinces; each of which was placed under a military jurisdiction of a mamluke bey; and the four-and-twenty beys were subject to the authority of a Turkish pacha, a general governor, appointed by the sultan. Nearly two centuries after the conquest of Egypt by the sultan Seleem, the authority of



AN EGYPTIAN FELLAH.

each successive pacha was, with few exceptions, respected by the beys, but the latter by degrees obtained the ascendancy, and Egypt became subject to a military oligarchy.

The agricultural labourers who had been thus enslaved at the invasion of Sultan Seleem were, for the most part, the inhabitants of one particular district, they were called Fellahs. They are now to be found in every part of the country. They have become united with neighbouring nomade tribes. The traveller cannot fail to observe the general likeness and characteristics which they all possess, and the resemblance which may be traced between the modern and ancient Egyptians. The same

liarities of this people, and the peculiarities of the ancient people of Egypt are totally dissimilar. The Copts were without agriculturists, without artisans, without commerce, without government, and this continued from generation to generation—an uncultivated nomade tribe; the Egyptians, on the other hand, were celebrated for all those things of which the Copts were entirely destitute.

The Egyptian agriculturist is tall, vigorous, and well proportioned; his features regular, his eyes dark, deeply sunken in their sockets, but remarkably expressive and full of fire. Their lips are well formed, their teeth clear and beautiful, their faces



FELLAH WOMEN.

oil, the same sky, the same water, the same acts, the same work at certain times, the same alternations of hope and fear, the ame sphere of ideas; in a word, the circumstances of life entirely dentical, must of necessity exercise a powerful influence over eings, modified by the laws of creation according to the country which they inhabit, and which conforms thought, feeling, expression, hysiognomy to the objects by which they are surrounded. Thus t would appear that the Fellahs are the veritable descendants of he ancient Egyptians, rather than from the Copts, to which origin t has sometimes been endeavoured to trace them. The pecu-

long, and terminated by a black curly beard. The moustache and eyebrows are thick and full. The Fellahs of Upper Egypt are of a copper colour, and thin and spare in their proportions. In the form and features of the female Fellah may be found a striking and perfect resemblance to the former population of Egypt, as we find their representation sculptured on the most ancient monuments. Such as are the statues of Isis, such are the women of modern Egypt. We are thus brought to two most interesting conclusions; the one the criterion afforded by art for judging of the ancient state of Egyptian genius; the other corro-

borating the evidence of science respecting the influence which the climate of a country has upon its inhabitants. The artists in the court of the Pharaohs drew after nature; nature afforded them models for their divinities, and the people still are the living proofs of the accuracy with which the artists of the old time represented the forms of nature. It is, indeed, in the bare outline in which this is so evidently the case, for some of the principles of their polytheistic faith prevented them from accurately copying the human form; but it is in the general character of the whole that the case is so evident.

The Fellah women are not remarkable for any great beauty; but there is an indescribable charm about them, a grace and elegance which attracts immediate attention. They marry about the age of twenty; and generally in less than five years are worn down by misery and fatigue, the cares of a family whose wants they can ill supply, and the harsh and cruel treatment of their husbands. In many of the Egyptian cities these mothers may be seen, sometimes with a child astride their shoulders, and another in their arms, while they are compelled at the same time to bear a heavy burden on their heads; sometimes, almost destitute of clothing, lying at full length in sunny streets or public squares, with children, perfectly naked and as filthy as neglect and superstition can make them, playing by their sides.

The food of the Fellahs is almost entirely vegetable. It consists of a piece of bread, badly cooked, dates, and wild fruits; occasionally a morsel of cheese, a small portion of fish, and at very rare intervals a piece of meat. The water of the Nile is their common drink. The sole luxury they possess being an occasional pipe and cup of coffee. The Fellahs smoke a peculiar species of tobacco common to the soil, which is prepared by a simple process, and affords an agreeable perfume. The coffee is made remarkably strong, and taken without sugar.

The national costume of the Fellahs is a long robe drawn together at the waist by a girdle of red cloth. A pair of full drawers or trousers of blue or white calico. The head is covered with a turban of white cotton. The feet and lower part of the legs are naked. The dress of the Fellah women is a long robe of blue or brown. The headdress is more complicated than that of the men. A handkerchief of silk and cotton is attached to the hood, and covers the lower part of the face, hanging down upon the bosom in a long peak, this hides the whole of the features with the exception of the eyes, and produces a very extraordinary effect. An under covering of white cotton descends upon the forehead, and the whole of the headdress is ornamented with pearls, when the Egyptian is fortunate enough to possess any, but usually with pieces of shiny metal. Their wrists are decorated with large beads, and there is an air of coquetry about these women altogether which is strangely inconsistent with their oppressed condition, and the miserable labour to which they are condemned.

In very many cases it is a hard matter for the Fellah to preserve himself and family from starvation. His whole life is a struggle with circumstances for a bare subsistence, though it can hardly be called a struggle, for they are so beaten down that they possess but a small amount of energy; there is in them a stolid indifference, a dogged resignation, a fearful submission to the tyranny of those who govern; a few dates and a pipe, or a cup of coffee and a pipe, appear to soothe them and satisfy their wants. One English traveller indeed tells us that a discontented Egyptian vented his discontent, and expressed his idea of liberty, by wishing that the English would come over and subvert the Moslem sway—they have no hope in themselves, no trust in their own energy and power. The Fellah women are cordial, patient, and affectionate; they are far more industrious than the men, and bear all their trials with tranquil resignation, submitting to the harsh government of the husband with perfect docility. One great distinctive inequality subsists between these companions in misery. The husband is imperious and cruel. He eats his scanty meal alone, his wife waiting on him as a slave. When he has satisfied his wants, she is permitted to partake of what remains. She must not speak with him, without having received authority from her lord. Her obedience and conjugal love are worthy of a better fate. When any change in the government administration takes place, it nearly always produces great imposts; and the people, already taxed and enslaved, are compelled to render more assistance. In this case it sometimes happens that a Fellah is unable to furnish the money required. He strives hard, but cannot accomplish his purpose; the officers of the government pronounce him refractory, he is lodged in the common prison, and punished with the bastinado. The wife of the unhappy man immediately sets about his liberation, and pleads with the officers and magistrates, as a woman only can plead, that her husband may be spared. She exerts not only her eloquence, but her industry, so that if her words are unavailing, she may at last be able to furnish the required sum, and have her lord restored to her.

The wretched people are continually exposed to these shameful outrages. Every article of produce is taxed, and the sum is arbitrarily arranged by the pacha himself. Thus the Fellahs are reduced to abject slavery, and live on, in something worse than the fatalism of the Turk—something far different from the resignation of the martyr—something entirely distinct from the calm which precedes a storm—in a life which is only a sort of vegetation, which knows no energy, no hope, no elevating principle, and casts them down far lower than the brutes.

On approaching an Egyptian village, the numerous turrets present the appearance of a grand bazaar; but a nearer view shows us that even the houses of the wealthy are but poor and ill provided, and that the dwellings of the common people are little better than mud huts. The plague which raged in Egypt in the year 1838 was the means of drawing the attention of the government to the condition of these habitations, and some remedial measures were applied, but their state is still deplorable. The scenery along the shores of the Nile is flat and uninteresting. Here and there, however, the fields of grain, the orange-groves, the gardens abounding in vegetables and flowers, the stately palm, the acacia, the locust-tree, relieve the monotony of the prospect. But the fact cannot be disguised, that amid all, the homes of the agricultural peasantry are of a most miserable and wretched description.

The improvements which Mehemet Ali introduced were of course attended with some expense, and this was raised by a tax imposed on the people. Many of the Fellahs being unable to furnish the necessary amount, various committals to gaol ensued, and the sanatory measures were productive of even more evil than good, plunging very many into great distress, and producing much increase to the poverty and wretchedness of the labouring population.

Most of the Fellah villages are situated in localities the least adapted for the preservation of health; the houses are built of earth; the annual overflowing of the Nile renders the whole neighbourhood unhealthy. Miasmatic vapours are continually arising, and the atmosphere is most pernicious; the cemeteries are over-crowded and ill-arranged; the tombs badly kept, and no precautionary measures adopted to prevent the spread of infection. The thousands who died of the plague are here huddled together, and the fatal odour arising from the graveyards charges the air with the most deleterious principles. The water becomes impregnated with the same hurtful properties; and in a country where every precautionary measure should be adopted—where sanatory reform is more necessary than in any other part of the world—the whole of the agricultural population are exposed to the deadly effects of a fetid atmosphere, together with all the misery and wretchedness which idleness, poverty, and oppression can bring upon them.

The ordinary habitations of the Fellahs are composed of mud and straw. A date-tree forms the centre of the dwelling, its branches and leaves the ceiling. The exterior walls are covered with clematis and honeysuckle, and two or three palms cast their shadow on the house. Within the enclosure, the father, mother, children, beasts of burden, and poultry are thronged together. There the smoking goes on continually, there the provisions are cooked—there the family sleep. The only light and air which serve to render the place at all habitable are admitted through small windows, or rather loopholes made in the wall. The husband and wife have each a box or cupboard, and these are the only pieces of furniture which deserve any special attention. These boxes are composed of the wood of the lemon-tree which grows on the banks of the Nile. The opening is fastened by a sort of latch, and the whole is curiously carved and decorated

The Fellahs prize these boxes very highly; in them, they store all they count as valuable, gifts from friends, decorated robes, ornaments, &c., and in winter cheese and dates.

The hand-mill is another object which attracts attention in the home of the Fellah. The mill is composed of two pieces of stone, one immovable, having an upright pivot on which the other stone moves. They are generally made from the remains of old columns. This is the only purpose to which the Fellah devotes the relics of his country's by-gone glory. Many of these mills are covered with the most curious and interesting sculptures. With the exception of certain vases of porous earth, these are the only objects which possess any interest, indeed the only furniture which a Fellah home exhibits.

The Fellahs have no inventive genius. They are creatures of habit. Their agricultural pursuits are conducted on the traditions which from father to son have been handed down concerning the method pursued in the old days of Egypt. Otherwise, they are totally ignorant. They have never examined, and know nothing about the systems of other nations. They reject every new idea; resent every innovation upon "the good old way," ridicule every improvement, and entertain a supreme contempt for everything modern. The waters of the Nile, which effect great disorder in their annual inundations, might possibly be so governed as to be rendered far more serviceable than they are—art might unite with nature in her irrigating process—but the pacha regards all such attempts as signs of mental alienation, and every European effort is balked with a malice truly discouraging. When the Egyptian boatman hears of steam navigation, he angrily demands of the European, "Where, dog, is a steamboat, that it should sail better than our fathers' boats?" The Egyptians divide the year into three rural divisions: winter, summer, and Nile. The whole of the fertile country is very flat; but the lands which are nearest the river are rather higher than those which are farther remote. This has been supposed to result from a greater amount of mud deposited upon the former; but this, however, cannot be the case, for it is observed, that the fields near the river are generally above the reach of the inundation, while those towards the mountains are abundantly overflowed; but while the latter yield but one crop, the former are cultivated throughout the whole year; and it is the constant cultivation and frequent watering that so considerably raise the soil, not so much by the deposit of mud left by the water, as by the accumulation of stubble and manure. The cultivable soil throughout Egypt is free from stones, excepting in parts immediately adjacent to the desert. It almost everywhere abounds with nitre.

The annual inundation irrigates the land sufficiently for one crop, but not without any labour of the Fellah; for care must be taken to detain the water by means of dams, or it would too soon subside. The highest rise of the Nile ever known would scarcely be sufficient, if the waters were allowed to drain off the fields when the river itself falls. A very high rise of the Nile is indeed an event not less calamitous than a very scanty rise; for it overflows the vast tracts of land which cannot be drained, it washes down many of the mud-built villages, and occasions an awful loss of lives as well as property.* Nearly the whole of the soil which in Egypt is adapted to agricultural purposes, has been deposited by the river. This would, perhaps, lead one to think that the banks would ultimately become too high to be subject to the inundation, but it must be borne in mind that the bed of the river rises at the same time, and in the same degree. "At Thebes, the Nile rises about thirty-six feet; at the Cataract about forty; at Rosetta, owing to the proximity of the mouth, it only rises to the height of about three-and-a-half. The Nile begins to rise in the end of June, or the beginning of July; that is to say, about or soon after the summer solstice, and attains its greatest height in the end of September, or sometimes (but rarely) in the beginning of October,—that is to say, about or soon after the autumnal equinox. During the first three months of its decrease, it loses about half the height it has attained, and during the remaining six months, it falls more and more slowly. It generally remains at longer than three or four days at its maximum, and the same length of time at its minimum; it may therefore be said to be three months on the increase, and nine months gradually falling; it often remains without any apparent increase or diminution, at other times than those of its greatest or least elevation, and is subject to other slight irregularities. The Nile becomes turbid a little before its rise is apparent, and soon after it assumes a green hue, which it retains more than a fortnight. It is not drunk by the people while it is green, there being a supply previously drawn, and kept in cisterns.

The boats still bear the husbandmen upon the water—the seed is still scattered in the flood—bread cast upon the waters—the most primitive methods of agriculture are pursued, and it seems as if with the Fellah people time had ceased his march. But in their condition there is something more than a natural disposition for indolence. It is not alone the lazy bias which has reduced them to their present state. They are governed by a system as fickle as it is tyrannical. The features of that system are discoverable throughout the whole arrangements of the land. The pacha is a tyrant; the courtiers are tyrants; high and low are alike subject to the most degrading punishments. In the harems of the rich and powerful, the women are frequently guilty of the most abominable acts of cruelty and oppression. Among the middle and lower classes, both wives and female slaves are often treated with the utmost brutality. The former are often cruelly beaten, and the latter not unfrequently beaten to death. A recent traveller tells us, that a man not long since beat a female slave so severely, that she lingered in great pain for about a week and then died; and that another beat one of his female slaves till she threw herself from the window and was killed on the spot. The Fellahs are subjected to the most cruel treatment, and the wives and children of the Fellahs find harsh and bitter tyrants in husbands and fathers.

The wisdom of the Egyptians was in the old time proverbial, but they are now remarkable for mental inferiority. We frequently hear indeed of Mehemet Ali as a wonderful man; and so he was, but he was a Greek, and not, as is sometimes said, an Egyptian. He was one of the cruel lords into whose hands it was foretold the people should be given over; and Egypt bears perhaps as many marks of his cruelty as of his wisdom. "Egypt itself," says an old English writer, "has become the land of obliviousness; her ancient civility is gone; her glory, as a phantasma, hath vanished; her youthful days are over, and her face hath become wrinkled. She no longer poreth upon the heavens—her astronomy is dead in her, and knowledge maketh not her cycles. Memnon resoundeth not unto the sun, and Nile heareth strange voices. Her deities have departed, her pomp is spoiled, and the ornaments of her past greatness which remain serve to shadow forth the principle of vicissitude and the ceaseless effluxion of things."

Travellers tell us, that while the Egyptians are as destitute of thought and reflection as children, they have not their quickness of observation; that for guides the Egyptian boys are in all respects superior to the men. The boys are as remarkable for their cleverness as the men are for their stupidity. "I had," one says, "two of them at Thebes, and in my visits to the 'tombs of the kings,' as guides and water-carriers, and, though they were mere children (not more than six or eight years old), I was delighted with their acuteness and amiableness. They knew only a word or two of English, and I only a few words of Arabic; yet we managed to make use of our stock in such a way as to be at no loss for conversation. Their names were Mohammed and *Mohammed Ali*; the latter of whom, who had only the shred of a burnoose or cloak, no marakub or 'shoes,' and no *keffiah*, 'covering for the head,' I called, for reasons I need not specify, *Timsa*, or 'crocodile,' which name he joyfully adopted, never failing when he saw me approaching the shore, to shout from among the rest of his companions, '*Ana Timsa!* Timsa! Water-boy very good; guide-boy very good. Timsa Mohammed Ali!' On the day before leaving Thebes they followed me to the kanjiah or Nile boat on the opposite shore, and requested me to put them 'in a book as Mohammed and Mohammed Ali Timsa, water-boys—guide-boys—very good;' which, should I ever write one, I promised to do. Poor boys! all this acuteness and amiableness will be *beaten* out of them before they are men. I shall see their pensive faces no more!

* Englishwomen in Egypt.

"I have mentioned *beating*. To this all classes are exposed in Egypt, and this all classes inflict. The master beats the servant, the reis or captain beats the crew, the husband beats the wife, the parent beats the children, and the khadee beats them all. I have seen a janizary in Cairo strike a man with the belt of his korbaj on the mouth till it gushed with blood, and then kick him as he lay on the ground crouching and moaning like a beast of prey, having neither spirit to resist nor sense to escape."

The Babylonian, the Persian, the Greek, the Roman, the Saracen, the Turk, have each in turn overrun and subdued the country, and now it is scarcely possible for humanity to sink lower than it has sunk in that unhappy land. It is with melancholy that we look upon the monuments of its former greatness, its pyramids, its sphinxes, its tombs despoiled, its ruined temples, its buried cities from which the glory has departed. Looking upon these objects, the mind reverts to the old, old story of the Pharaohs, and contrasts the former greatness of Egypt's sons with the present condition of its people.

The direct taxes on land are about eight shillings per feddán, which is somewhat less than an English acre. But the cultivator can never calculate exactly the full amount of what the government will require of him. The Fellah, to supply bare neecssaries of life, is often obliged to steal, and convey secretly to his hut as much as he can of the produce of the land. He may either himself supply the seed for his land, or obtain it as a loan from the government; but in the latter case he seldom obtains a sufficient quantity; a considerable portion being stolen by the persons through whose hands it passes before he receives it. The oppressions which the peasantry of Egypt endure from the dishonesty of the Mamoors and inferior officers are indescribable. It would be scarcely possible for them to suffer more and live. The pacha has not only taken possession of the lands of the private proprietors, but he has also thrown into his treasury a considerable proportion of the incomes of religious and charitable institutions, deeming their accumulated wealth superfluous. The tax upon the palm-trees has been calculated to amount to about a hundred thousand pounds sterling. The income-tax is generally a twelfth or more of a man's annual income or salary. In the larger towns it is levied upon individuals; in the villages upon houses. The income-tax of all the inhabitants of the metropolis amounts to eight thousand purses, or about forty thousand pounds sterling.

Servants of servants, they are held in bitter bondage. Their country, once the pride of the world—once the focus of wisdom, beauty, and truth,—a land which still boasts immortal monuments in its vast pyramids—so dark and wretched, so low down in the scale of nations that its glory is gone altogether, and nothing but slavery and darkness remain. Yet Egypt has monuments of antiquity surpassing all others on the globe. History cannot tell when the most stupendous of them was constructed; and it would



A FELLAH DWELLING.

be no improbable prophecy that they are destined to remain the end of time. "Those enormous constructions—assuming rank with nature's ancient works on this planet, and raised as to defy the powers of man and the elements and time to demoli them, by a generation that retired into the impenetrable darkne of antiquity when their work was done—stand on the surface solemn relationship to the subterraneous mansions of death. shade of mystery rests on the whole economy, to which all the objects belonged. Add to this our associations with the regi from those memorable transactions and phenomena recorded sacred history, by which the imagination has been, so to spea permanently located in it, as a field crowded with primeval i terests and wonders."

Everything connected with the land of Egypt is full of interc —and none more so than the present condition of its Fellah, agricultural population.

THE WAR IN LA VENDÉE.



FONTENAY VENDEE, DEPARTMENT OF LA VENDEE.

La Vendee is celebrated in the wars of the revolution for its adhesion to royalty and opposition to innovation. The character of the country and its inhabitants is fast changing under the system pursued by Napoleon and Louis Philippe; and intersected as it has been by them with a network of high roads, it has lost much of its primitive character. But the place is full of historic associations, and possesses peculiar interest for all who have any patriotic feeling any admiration for courage and daring, any compassion for the oppressed, any regard for the crushed, the injured, and unfortunate.

The country is now described as an inextricable complication of heaths, brooks, heights, hollows, and little plains, having no connexion with one another. It is covered with trees, yet has no forests; every field, every dwelling, is surrounded by quick-hedges abounding with close-set trees, and surrounded by ditches forming complete natural redoubts. It is divided into three parts; the *Marais*, comprising the sands, salt-marshes, and ponds bordering the seashore, intersected by dikes and canals, abounding in pastures destitute of drinking-water; the *Bocage*, covered with thickets and heaths much cut up and well cultivated; and the *Plaine*, very rich and highly cultivated, abounding in cornfields and vineyards.

At the time of the first French revolution, the population of La Vendée consisted in a great measure of small farmers, a prosperous and contented race. There the aristocratic spirit had only exhibited itself in its most inviting aspect. Peasants and proprietors had mingled together in festivals and field-sports. There was no jealousy on the one side nor distrust on the other. The gaiety, the pride, the sensuality, the oppression, which marked the aristocracy in other parts of France, was there unknown, and the Vendeans had substantially nothing to complain of; they were attached to their landlords, their religion, and their old form of government.

But this old form of government was fast giving way. The huge wrong-doing of the higher classes, the unskilful management of politicians had already aroused a tempest, which was roaring in the faubourgs of Paris. The court had made light of the approaching danger. The preludes of the revolutionary drama had been disregarded.. Rumours had spread through the country that the government was about to try violence instead of intrigue, that troops were thronging around the capital—but all this excited no interest in La Vendée. When the voice of rumour grew louder, and the tale it had to tell was of fierce struggle, and fire, and blood—when in its thunder tones it told of the capture of the Bastille, and how a living flood of men had swept the streets of Paris, maddened with flushed and angry passions, how society was shaken to its centre, how old things were passing away beneath the deadly march of revolution, even then, La Vendée viewed the outbreak with distrust, and shrank from taking any part in the movement. The Vendeans remained tranquil until 1791, when the constituent assembly decreed that the clergy, like other public functionaries, should take the civic oath. The penalty for refusing was the loss of their livings. Many thousands refused, and hence arose a distinction between constitutional and non-conforming clergy. Those who refused to conform were ordered to resign their churches in favour of other priests appointed by the constitution: this they refused to do—Vendée was in a state of violent ebullition; the local authorities endeavouring to carry out the decree, and the peasantry everywhere offering resistance. This went on for some time; the ejected ministers were regarded as martyrs to the cause of religious liberty — crowds flocked to hear them, and if they were surprised by the military, a skirmish took place. Rumour still spread its fearful stories of the revolution, it told how Louis XVI. had suffered death, and how that the convention had decreed a levy of 30,000 men throughout France. The towns and villages of La Vendée were each to supply an allotted number of conscripts. The attempts to enforce this decree produced the civil war. At St. Florent, a young man named René Forêt headed a body of peasantry and dispersed the civil and military authorities; at Pin, Jacques Cathelineau scattered his burning words, and put himself at the head of those who were determined to resist, and support, what he called the cause of God and religion. He proceeded through the district, recruiting as he went, and rousing the country by setting the church bells ringing. The château of Tallais was taken by them, Chemillé share the same fate. In other parts of Vendée, Forêt, the young ma before mentioned, had aroused the peasantry and led them on his troop increasing every day. Another rising took place at short distance on the estate of Maulevrier. These three band soon united, and attacked Chollet. Beating the national guards they gained possession of a considerable quantity of arms, money and ammunition; and in a contest with the national guard of Saumur, secured a cannon, for which they conceived a grea veneration, and called it *Marie Jeanne*.

At Easter the little army separated for the solemnities o that season; and upon their reassembling several other leader speedily engaged in their struggle. It was not alone the peasant who rose against their oppressors, the royalist nobility joined th revolt. Among them might be distinguished the tall and sin gularly-handsome Henri Duvergier, Count de la Rochejaquelein The insurrection spread with fearful rapidity. The news soo reached Paris. The Convention appointed a military commission with authority to try and execute, within twenty-four hours, al peasants taken with arms in their hands, as well as all who shoul be denounced as suspicious persons. A revolutionary army mad their way into the heart of the Bocage; a fearful battle too place—a battle which was gained by the Vendeans, but not with out great loss. About this time La Rochejaquelein arrived amon them, but they received him with gloomy despair. A long cata logue of disasters had chilled their ardour; their army was de creasing day by day, and ruin seemed inevitable. At St. Aubin however, the peasantry were clammering for a leader; they sough a captain to lead them on, and found one in young Henri; hi words were full of fire, his bearing the very bearing of a hero eagerly they thronged around him. "My friends," said he, " my father were here you would have confidence in him. For me I am but a boy; but I shall prove by my courage that I am worthy to lead you. If I advance, follow me; if I flinch, ki me; if I die, avenge me!"

Victory followed victory. The Vendean army, with the courag of desperation, fought and conquered. Army it could scarcel be called; it seemed an enthusiastic host that was only an arm so long as there was work to do, and then subsided into so man quiet units of an agricultural population. A staff, indeed, alway remained in arms, but the vast concourse fluctuated, assemblin or disbanding as the occasion required. The page of its history full of the narration of attacks and defeats, of retreats and triumph ant conquest. A fierce intestine struggle, a ceaseless hostilit that now made head against all innovation, and proclaimed th power of legitimacy in Vendée, and that now gave way before th republican host—the Parisian soldiery—that now burnt trees liberty, and now erected them in public streets. This unceasin warfare greatly reduced the number of the royalists, who, aft staying about a week at Thouars, set out for Fontenay.

On the 16th of May the royalist army arrived and settled dow before the walls of Fontenay. A brisk attack ensued. And he among the leaders we notice the Abbé Guyot de Folleville, a ma who styled himself Bishop of Agra. The peasantry were ove joyed at the presence of this ecclesiastic, who had acquired a gre reputation for sanctity; but neither the holiness of the priest n the power of the Vendeans availed that time against the republ cans of Fontenay; they were repulsed with the loss of almost a their artillery, and what appeared to them more disastrous tha all—the loss of the cannon "Marie Jeanne." Nine days elapse and then a fresh attack was made on Fontenay; and witho cannon, without ammunition, without anything but indomitab courage, the town was taken, and Marie Jeanne was their ow again. It was at Fontenay that the idea first occurred to th Vendean leaders of the necessity which existed for establishir some sort of regular government. Accordingly a body of eighte or nineteen was appointed to sit at Chatillon. Of this counc the Bishop of Agra was president. Meanwhile the Conventi was not idle: reinforcements were sent down, and again th fighting commenced; again the whole district, which for a sho time had been comparatively quiet, was the scene of war with a its attendant horrors. The siege of Nantes ensued, when th fight was long and bloody, and ended fatally for the royalists, ar the mournful news spread far and wide. The Vendean w

emed no nearer its close, no nearer the attainment of the object
view, than when Forêt first struck the blow at Florent. It
d now, indeed, a different aspect. It was no longer a struggle
ainst the conscript system, no longer a quarrel about oaths and
mularies; it was a grand movement for the extinction of the
ublic, and the restoration of monarchy in France. The
ease was dangerous to those who held the reins of government;
threatened total and irrevocable ruin. Vendée had become, as
were, a royalist vortex in the heart of the revolution, said
rrere in his report of the 2nd of August. "It is with La
ndée that the aristocrats, the federalists, the department men,
d the section men hold correspondence. It is with La Vendée
at the culpable designs of Marseilles are connected, the dis-
aceful venality of Toulon, the movements of Ardeche, the
ubles of Lozere, the conspiracies of Eure and Calvados, the
pes of Sarthe and Mayenne, the bad spirit of Angers, and the
iggish agitations of ancient Bretagne. Destroy La Vendée, and
lenciennes, and Conde will no longer be in the hands of the
ustrian. Destroy La Vendée, and the English will no longer
cupy Dunkirk. Destroy La Vendée, and the Rhine will be
ed of the Prussians. Destroy La Vendée, and Spain will see
elf torn to pieces, conquered by the forces of the South, joined
the victorious soldiery of Mortagne and Chollet. Destroy La
ndée, and Lyons will resist no more, Toulon will rise against
e Spaniards and the English, and the spirit of Marseilles will
e to the level of the republican revolution. In fine, every blow
hich you aim at La Vendée will resound through the rebel towns,
e federalist departments, and the invaded frontiers." These
ords were but the fearful indication of still more fearful action.
ne efforts of the republic to suppress the rising were increased
afold; a desperate battle took place at Luçon, in which the
ndeans suffered a terrible defeat, followed by all the horrors of
e and massacre. The Vendeans were surrounded on all sides
the outposts of their enemy; the destructive circle drew
oser and closer each day; and as the magic ring contracted the
ndeans performed prodigies of valour; but the struggle could
t last long. The air was filled with smoke of burning villages,
e evening sky was reddened with the fires that blazed in every
rection, the lowing of the cattle and the howling of the wolves
ere blended together, death and destruction marched through
e land, and left their footprints everywhere.

The royalists and republicans soon came to a long and desperate
gagement. Chollet was the scene of the struggle. Forty-four
ousand of the constitutional soldiery and forty thousand Ven-
an peasantry met in the shock of battle. The result was still
ubtful, when a panic seized the royalists; a sudden cry was
ised—"To the Loire! to the Loire!" and in one wild intract-
le herd they fled. In vain their leaders interposed; blind
npulse led the people away; and as the river of fugitives fled
ward the voice of La Rochejaquelein was drowned as he
outed, "Let us die where we are!" The stream poured on,
resistible, ungovernable; away from happy homes and well-
ved spots endeared by old associations; away from friends and
ace and comfort; away from all the hopes that they so fondly
d cherished; away from fair La Vendée, to seek with bleeding
et and broken hearts some other asylum. They crossed the
oire. Madame Lescure has given a fearful picture of that pas-
ge, and likens the disorder, the despair, the terrible uncertainty
the future, the immense spectacle, the bewildered crowd, the
lley, the stream which must be crossed, to the last judgment.
a Vendée was a desert. "Meanwhile," one says, "the expa-
iated Vendeans were moving through Brittany like a creeping
mine. They had to keep constantly on the march, so as not to
flict any one spot with too much of their presence. The hunger
an additional mass of 100,000 human beings is no slight visitation
pon a province, not to speak of the numerous revolutionists who
ere pursuing them; but the people of Maine and the Bretons,
aggy and uncouth as they seemed with their sheep and goat skin
cesses, had human hearts in their breasts, and strove to alleviate
ne woes and supply the wants of their royalist Vendean brothers."

On the night of the 24th of October, when within a short dis-
nce of Laval, they fell in with a body of republican troops.
he morrow saw another fierce and bloody warfare, a battle in
hich the courage of the dispirited Vendeans was reanimated by
complete victory. But what were these conquests worth, when a whole nation had to be conquered? Truly they were for the time victorious, but France poured out fresh troops. Speedier plans for the overthrow of the unhappy peasantry were indeed suggested. It would be neater and less expensive, one argued, to kill the brigands with doses of arsenic than bayonets—why not poison the bread? why not poison the springs? were the suggestive inquiries of economical republicans. The attack of Granville soon followed. The Vendeans looked for English help, which never came. Granville was their last struggle; they could hold out no longer; with their bodies fatigued and their spirits fainting, they broke up into detached bodies to seek once more their homes. The republican army lay between them and their beloved land: what cared they? Theirs was the courage of despair. A frightful battle took place at Dol; they cut their way through the host. La Vendée lay beyond: that was enough. They fought as if every man was a host, and every host invincible. The Loire must be crossed, and how to cross it is the great question of the way. There it rolls, there it flows and ebbs—an impassable barrier; the republicans are close upon them in the rear; black hopelessness is in every heart. The army is shattered to pieces; heaps of slain are there, and everywhere new pyramids of mortality are rising. They have but one small boat, and another flat-bottomed one they have found at the river's edge; they have attempted to seize some boats loaded with hay on the other side of the river, but in vain—worse than in vain; the attempt has cost them their best general and their two boats. They number less than twenty thousand. They have manufactured rafts, but a gunboat sinks them; the republicans are upon them; desertion is the only chance of escape; fugitives are flying in every direction; the wreck of the army marches to Blain, a wretched, motley throng; they have shut themselves up in Sarenay, and their hour has come,—the annihilating stroke must fall. It falls; and the rest is a story of flight and pursuit, of concealment and discovery, of cruelty and death. Months afterwards twos and threes were rooted out, and died by the hands of the public executioner. The drama of the royalist struggle was over, and the black curtain of desolation and death had fallen on the scene.

We have said little about Fontenay, which our engraving represents. It is as picturesque a spot as any in La Vendée. The tower of the church of St. John and the cloisters of Notre Dame rise up before us; the city is situated in an amphitheatre of hills, and broad plains extend beyond them. Many illustrious men have been enrolled among its citizens;—Pierre Brissot, the physician; André Tiraquean, the lawyer; Barnabé Brisson, first president of the parliament of Ligne; Nicholan Rapin, the historian; and many others. At the monastery of Fontenay, Rabelais entered as a novice. Every part of La Vendée has peculiar and earnest interest. As the stronghold of legitimacy, it occupies a conspicuous position in the historical records of the revolutionary period, for its people dared to lift their voices for their old institutions and their king, when France was still delirious in its Reign of Terror, when the monarch had become the victim of the popular outburst, and in the names of liberty and reason the grossest outrages had been committed upon both; when old animosities and pent-up fury overflowed and deluged the country far and wide, even then the Vendeans had fought and died for the white lily of St. Louis, and trampled on the *bonnet rouge*.

THE THREE FATES.

In the Gallery of the Offices at Florence may be seen the portrait of an old woman, which irresistibly arrests the attention by the singular force and hardness which it displays. It is a drawing by Michael Angelo. In the same town a descendant of that immortal artist has in his possession a similar design. That head appears like a study, sketched rapidly from nature, and we find it reproduced three times, with some slight modifications, in the picture of the "Parcæ," in the Pitti Palace. Little did this poor old woman, whom the artist doubtless met by chance in the streets of Florence, and sketched upon the spot, imagine that her likeness would ever be transmitted to posterity, as

the representation of the three inexorable sisters of the ancient mythology. This painting would be worthy of comparison with the most sublime of Dante's descriptions, if the artist, who doubtless was well stricken in years when he executed it, had taken the trouble to idealise his model a little more. But he seems to have contented himself with casting on the canvass merely a vigorous sketch. Some connoisseurs go even so far as to say that they can discover in it some touches added by one of his pupils. However this may be, the power of the master is no less apparent in this stern and severe sketch, than the vigorous genius of Shakspeare in the three "weird sisters" in *Macbeth*. When travellers in that enchanted

the palace of Lorenzo the Magnificent, while young, the descr tion of the Fates contained in the poem of Catullus upon t marriage of Peleus and Thetis. But even if Michael Angelo h any need of such a reminiscence, there is but little relati between the florid description of Catullus and the simple a tragic character of the painting. We subjoin a tolerably lite translation of the passage from the Latin.

"The Parcæ, as they shake to and fro their feeble and attenua bodies, commence their prophetic chants. A white robe adorn with oak garlands, and having a border of Syrian purple, cov their trembling limbs. Red fillets surround their pale forehea and their untiring hands perform their dreadful task. The



THE THREE FATES, FROM A DRAWING BY MICHAEL ANGELO, IN THE GALLERY OF THE PITTI PALACE AT FLORENCE.

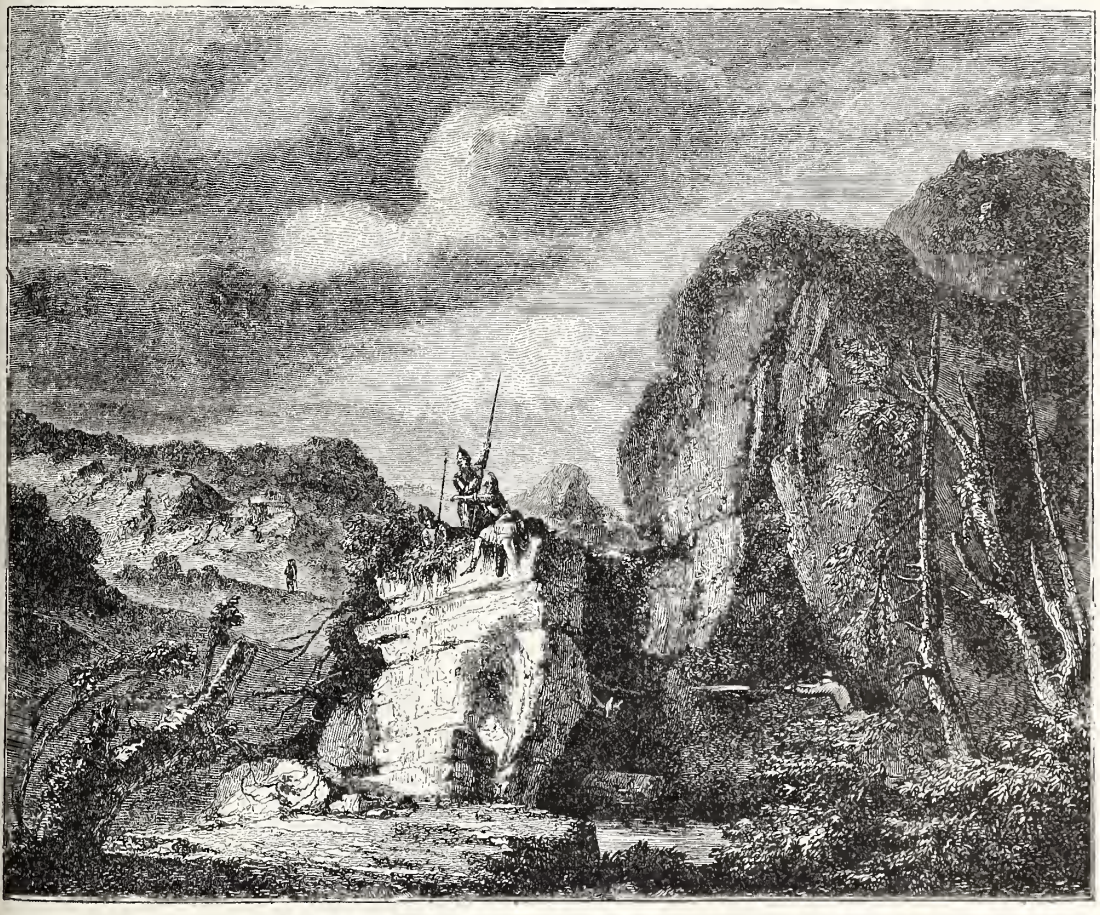
gallery of the Pitti Palace cast their eyes upon this painting, the liveliest and gayest amongst them become sad and sombre. The aspect of those three figures, pale, calm, inflexible, and coldly cruel, sends an icy chill to the heart. One reads the fatal thought written in those pitiless eyes, which seem to search and interrogate the inmost soul of the bystander, and in their homicidal hands which work evermore and never seek repose. Clotho opens her mouth and pronounces the irrevocable sentence. It is executed, and an existence is finished on earth. The three sisters, deaf to prayers and tears, continue to accomplish the will of destiny. Niccolini, who has written some lines upon this painting, thinks that Politian must have read to Michael Angelo, in

holds the distaff, replenished with smooth flax; the right s out the thread lightly and makes it pliant between the fing and the thumb imparts to the spindle a rapid motion. W their teeth they equalise the tissue, and the pieces detached fr the thread adhere to their dry and shrivelled lips."

It may perhaps be necessary to add for the information some of our readers, that the *Parcæ* or Fates were three deities the Greek mythology, the daughters of Nox and Erebus; th names were Clotho, Lachesis, and Atropos. The first was s posed to hold the distaff, the second to spin the thread of hun life, and the third to cut it. But all were acting in obedie to the behests of another mysterious agent known as Destiny.

SALVATOR ROSA.

)N the twentieth of June, in the year 1615, Salvator Rosa was born at Naples. Of his early life but little is known. It ppears that he was intended for the priesthood, that his riends purposed to devote him to the church; but the austerity, the seclusion, the placidity of a monk's existence was ll suited to his warm and ardent temperament. He already egan to exhibit a taste for design. Art claimed her devotee. Ie was placed under the care of Francesco Francanzano, a ainter to whom he was related. While with him he studied ard, but was forced for a livelihood to sell his drawings about he streets. One of these happened to fall into the hands of anfranco, who sought out the artist, and enabled him to enter nto the Academy of Ribeira, where he continued till his twentieth ear. At that period his father died, and the young artist ccompanied Lanfranco to Rome, where he continued four years,



A LANDSCAPE. FROM A PAINTING BY SALVATOR ROSA IN THE LOUVRE, PARIS.

nd found a patron in Cardinal Brancarci, who took him to iterbo, and gave him employment.

After some time he returned to his old home. We encounter im in the streets of Naples among the gay groups that crowd he public walks, sailing on the deep waters of the Gulf, wandering on the volcanic mountain side, now sketching some picuresque group of lazzaroni, now a clump of trees, now a wild and ocky defile, anon a curious appearance of the clouds. Some of is biographers tell us that he was beset by a troop of brigands in ne of his rambles, carried by them away into the rocky heights hich abounded in the neighbourhood, that he voluntarily beame associated with them, and for a short period shared their ild adventurous life. This story is in perfect accordance with he subjects which so often engaged the painter's pencil. His reat excellence lay in landscape; he delighted in representing cenes of desolation, solitude, and danger; gloomy forests, rocky shores, lonely dells, where bandits lay concealed, or watching for their prey, or besetting some rich traveller. Such scenes occupied his attention, and the majority of his works are of that class. The Neapolitan banditti were, about the period of which we speak, rendered so captivating upon the stage, that the authorities found it absolutely necessary to forbid the representation of dramas in which they figured, and even to prohibit their costume at the masquerades. So numerous were these predatory bands, that the Duke of Guise, in the Neapolitan revolution, found no difficulty in raising an army of them to aid in his endeavours to seize on the throne of Naples. He thus describes them:—"They were three thousand five hundred men, of whom the oldest came short of five and forty years, and the youngest was about twenty. They were all tall and well made, with long black hair, for the most part curled; coats of black Spanish leather, with sleeves of velvet or cloth of gold; cloth breeches with gold lace, most of them scarlet; girdles of velvet laced with gold, with two pistols on each side; a cutlass hanging at a belt suitably trimmed, three fingers broad and two feet long; a hawking-bag at their girdle, and a powder-flask hung about their neck with a great silk riband. Some of them carried firelocks and others blunderbusses; they had all good shoes with silk stockings, and every one a cap of cloth of gold or cloth of silver, of different colours, on his head, which was very delightful to the eye."

The attraction of Rome soon drew Salvator thither again, and he there became known to Prince Giovanni Carlo de Medici, who took him to Florence, where he stayed nine years, dividing his time between poetry, painting, and music. It was not alone for painting that Salvator Rosa was celebrated. The mind has an amazing and miscellaneous appetite for knowledge of all kinds, both small and great. Goethe was a botanist as well as a poet;

Sir Joshua Reynolds was as justly celebrated for his ivory polished periods, as for his highly finished portraits. After the death of Salvator Rosa his manuscript compositions in music were purchased at Rome of his great granddaughter. While residing at Florence, his house became a sort of academy; the literati of that city were charmed with his conversation. Plays written by himself were performed at his house, and he regularly took a part in their representation. He painted many pictures for the grand duke, who rewarded him nobly, as did also the Maffei family, whose palace in Volterra he ornamented with several fine pictures. While there he composed his "Satires," which have passed through several editions. But at various periods in his life poverty overtook him. His unsettled habits, his frequent wanderings, brought adversity upon him, but the love of wild romantic scenery was strong within him, and he would quit the city for weeks together to journey among some of the sublimest scenery of nature which fair Italy could present. Writing to a friend, he says:—

"I have been during fifteen days in continual movement, and my journey is, without comparison, the most curious and picturesque which I have had since I came to reside at Florence. It is an extraordinary mixture of savage grandeur and domestic scenes, of plains and precipices, and it has afforded no small pleasure to me. I was much struck with the aspect of a mountain, which is, I think, the noblest I have ever seen beneath the sky of Tuscany. How glorious are these mountain heights with their solitary hermitages, how delightful to the painter, how sublime to all! I have seen the famous cascade of Velino, a view of which is capable of satisfying the imagination of the most ardent lover of terrible beauty."

After his return to Rome he charged exorbitantly high prices for his paintings, began to despise landscapes, although that was his great *forte*, and began to paint historical subjects. In this department of art he exhibited great genius, and some of the Italian churches still boast of his works. In his manner of living he now assumed the gravity of the philosopher; his paintings conveyed a moral sentiment, yet was Salvator fond of a joke. Pilkington tells us that the painters of Rome having refused him admittance into the Academy of St. Luke, he contrived to place a caricature of his own in the church when the paintings were exhibited. However, he concealed his manner, and afterwards said that it was done by a surgeon to whom the painters had acted very ill in refusing a place in their academy, although their works stood so much in need of one to set the limbs which they daily dislocated or distorted." Another time finding a harpsicord, on which he sat down to play, good for nothing, "I'll make it," said he, "worth at least one hundred crowns." He then painted on the top a piece which immediately fetched the sum he mentioned. A gentleman being desirous of having the portrait of his friends painted for his gallery, applied to Salvator, who made caricatures of the whole; but as he inserted his own among them no offence was taken. A person of great wealth had been long treating with him for a large landscape, and every time he came Salvator raised the price one hundred crowns. The gentleman expressed his surprise, but Salvator told him that with all his riches he could not purchase it, and to put an end to his importunities destroyed the picture before his face.

A remarkable versatility distinguished Salvator Rosa. "In history," says Sir Charles Eastlake, "he followed the style of the *Naturalisti*, and often treated it successfully. Some of his pictures of this class, it is true, want interest and importance,—as for instance, several in the Studg Gallery, and in the collection of the Prince of Salerno at Naples; some are indeed merely academy figures, as the Prometheus, in the Corsini Palace at Rome. Others again, are impassioned and characteristic. The best of the kind is the conspiracy of Cataline, in the Pitti Palace, with figures taken immediately from the excitable Neapolitan life, dressed in old Roman costume."

His portraits were almost equal to Rembrandt, and in battle pieces he produced several very excellent works. In landscape he was tolerably independent in his style; in wild mountain scenery he displayed much power and originality. There are several very excellent specimens of this kind in the Gallery of Augsburg. In some of his works the landscape becomes subordinate, and the figures form the principal subject of the picture in these, the fantastic and poetic conception of the artist appear in all its originality. The illustration which we present to ou readers is from a painting in the Louvre.

After a long residence at Rome, Salvator Rosa was attacked b the dropsy. He died on the 16th of March, 1673.

BRITISH FISHERIES.

In recurring to this subject, the recent disputes with regard t it naturally enough must again engage our attention, as the are likely to have an important influence, not only upon th future destiny of the British fisheries, but upon the maritim supremacy of England, for the fisheries are the nurseries hardy seamen.

Mr. Webster published a statement on the subject urging th American claims; the pending Presidential contest added to th public excitement on the subject, and the rumours of wa became rife. It is not at all likely that such a calamity coul arise from such a cause. Perhaps both governments have acte unwisely and precipitately in the matter. If the American felt aggrieved by their exclusion from large bays, where th deep-sea fisheries are inexhaustible, a friendly representation our Government might, and we think, should obtain, as an a of national good neighbourhood, the concession required. Th would have been much better than the infraction of the lett and spirit of a treaty, however unfavourable to their interest On the other hand, no hostile demonstration calculated endanger the peace and civilisation of the world, and to involv costs that would soon absorb the profits of all the fisheries, shou have been adopted by the British cabinet till all its diplomat resources were exhausted. It must be recollected, that th American vessels are permitted to enter the British harbours f the purpose of repairs, and obtaining provisions; and it alleged, that under cover of this, and in connexion with the trespassing, they have sometimes been found engaged in smugglin transactions. However, we have no doubt that the dispute w be amicably settled, and that the friendly spirit of two nation so nearly related, so united by great political and religio principles, and so identified in their mission and destiny, will maintained intact. If both parties would carry out fully t principle of free-trade, in connexion with the fisheries, a reciprocate their advantages, there would be an end to su disputes.* Yet the present government have so far departed fr the policy of this country, as to sanction in the colonies, the evil principle of promoting fisheries by means of bounties. a despatch dated May 26, 1852, Sir John Pakington said, "With regard to the question of promoting the fisheries of t British colonies by the means of bounties, her Majesty's Gover ment, though desirous not to sanction any unnecessary deviati from the policy which regulates the commerce of this count are still disinclined to prevent these colonies, by the interositi of Imperial authority, and especially pending the negotiation wi the United States of America for the settlement of the princip on which the commerce of the British North American colonies hereafter to be carried on, from adopting the policy which th may deem most conducive to their own prosperity and welfare."

In reference to the threatened enforcement of the treaty 1818, as construed in this country, Mr. Webster, in a despat which has created a great deal of excitement says,—"T immediate effect will be the loss of the valuable Fall fishing American fishermen—a complete interruption of the extensi business of New England, attended by constant collision of t most unpleasant and exciting character, which may end in t destruction of human life, in the involvement of the governme in questions of a very serious nature, threatening the peace of t two countries. Not agreeing that the construction thus put up

* Since the above was in type, the dispute has been settled by amicable arrangement which concedes to the Americans the right of fish everywhere beyond three miles from the shore, and to the British the sa right, with regard to the American waters. We, however, have the wo of the bargain, as it is said that on the coast of the United States there no fish to catch.

.e treaty is conformable to the intentions of the contracting
irties, this information is, however, made public, to the end
iat those concerned in the American fisheries may perceive how
ie case at present stands, and be upon their guard. The whole
ibject will engage the immediate attention of the government."

A memorial was in process of signature at Boston, stating
iat 2,100 vessels, and 30,000 seamen are now engaged in the
sheries, representing property valued at 12,000,000 dollars;
iat the people of New England and their fathers have enjoyed
ee right to fish in the now proscribed waters; and that the
nforcement of the new construction put upon the treaty of 1818
ill ruin many families in New England. Therefore, the memo-
alists pray the President to send a naval force to the British
forth American waters, sufficient to protect the fishermen in
ieir lawful occupation.

Of all the fisheries, the whale fishery is the most interesting
nd exciting; pursued as it is in turbulent seas, and sur-
ounded by perils arising from the tremendous strength and
erce death-struggles of the whales, those giants of the deep.
)uring the 12th, 13th and 14th centuries it was pursued success-
ully in the Bay of Biscay. But that fishery has long ceased,
wing, probably, to the extermination of the race of whales which
nhabited those regions, and which were of a smaller size than
hose found in the northern seas. The adventurous voyagers,
who, towards the end of the 16th century, sought a north-west
passage to India, led to the establishment of the whale fishery in
he seas of Greenland and Spitzbergen. The English and Dutch
irst engaged in the trade, and were quickly followed by the
French, Danes, Hamburghers, and others. At first the whales
were very numerous, and the fishing comparatively easy and
very successful. Immense quantities of oil and whalebone were
ent home, in ships which went out in ballast for the purpose.
When the fish became more scarce and more difficult to be
caught, the trade was encouraged by bounties, which con-
inued till 1824. The northern whale-fishery is now chiefly
)ursued in Davis Straits. In twenty years, from 1815 to 1834,
nclusive, the average annual results of the Greenland and
Davis Straits fishery were as follow:—

Number of ships returned to Great Britain	115
Tonnage of ditto	37,013
Number of ships lost	5
Tuns of train oil	11,313
Tons of whalebone	591
Number of whales taken.....	1,024
Tuns of oil yielded by each whale	11½
Tuns of oil produced by each ship.....	101¼

The oil was £28 15s. a tun, and the whalebone £163 per ton, so that the whole average annual produce during those years was £421,704. The whale fishery is prosecuted by the people of New England with great success. There is also a South Sea whale-fishery, which occupies some hundreds of men, and which produced, in 1840, the sum of £224,144. The Americans are most successful fishers. Their whale fishing is more extensive than that of all other nations. Even on the Australian coasts they beat our own colonists. They verify in the present day what Burke said of the men of Massachusets in 1774:—"Neither the perseverance of Holland, nor the activity of France, nor the dexterous and firm sagacity of English enterprise, ever carried this most perilous mode of hardy industry to the extent to which it has been pursued by this recent people." In 1843 the imports from the whale fishery into the United States was, —165,744 barrels of sperm, and 205,861 of whale oil, and 1,908,047 lb. of bone. The fishery gave employment to 193 ships and barques, 28 brigs, and 13 schooners—234 vessels in all, of 165,744 tons, manned by 17,500 seamen. The value of the oil and whalebone was estimated at seven millions of dollars. Electricity has been recently brought to bear in the capture of whales. In each vessel there is a galvanic battery, and when the harpoon penetrates, the fatal agency is sent by a conducting wire through the rope, and the animal, instead of plunging desperately, to the imminent peril of the men's lives, receives its quietus instantaneously. This is another new application of this mysterious power; and others of incalculable effect on the world's history may be expected ere long.

TREATY OF COMMERCE WITH FRANCE.

It is a singular fact that the very same cause which makes French wine dear in England often spoils French dinners. The English have put heavy duties on the wine, and are content to doze over bad sherry and worse port at high prices, while our lively neighbours are chattering away over sparkling champagne and burgundy for about the same expense. But the former have at least the consolation of knowing that if they, to annoy and damage the French, deprive themselves of some comforts that they might otherwise have, the French in like manner curtail their enjoyments to damage them. The English drink bad wine, or none at all, to prevent the French vine-growers from making money by them; and the French put up with cold plates at dinner that the Stafford pottery may not thrive apace. French crockery-ware will not bear strong heat, and therefore French ladies and gentlemen often have their dinners spoilt. This is but one instance. Seeing our cotton and woollen manufactures so good, the *grande nation* thought it should have good manufactures too. One would think the best way of attaining this would be the encouragement of enterprise and competition, and the energetic application of the natural resources of the country to industrial purposes. Nothing of the kind; the first thing done was to exclude all textile fabrics of English manufacture, and force the French people to wear inferior goods of their own making, and pay a high price for them as well. Linen in France costs from 40 to 50 per cent. more than in England, in consequence of the prohibitory duties on Irish yarns. The French nation loses annually about £6,000,000 sterling on this one article alone, and the government loses the handsome revenue which they formerly derived from a comparatively small duty of ten to fifteen per cent.

All this flows from the old desire, which every government in the world has at one time or other evinced, to create manufactures by its patronage alone, to force them like hothouse plants, and as far as possible prevent the formation of any bond of union between the nations, by making each independent of the others. And this too led to the singular anomaly, that, side by side with gigantic efforts to destroy the natural obstructions which prevent the full intercourse of the inhabitants of one country with those of another, artificial obstructions have grown and flourished. Art and science have of late years lavished all their energies upon the increase of speed and safety in travelling, and in the transport of goods. To cross the channel to France with a cargo of calico or dishes is a trifling affair nowo'days, and one would think, that if Frenchwomen were greatly in need both of the one and the other (as the world knows they are), this would be one of the best services we could render them. But we are met on the other side by bearded douaniers, who, in the name of the French nation, throw every possible obstacle in our way, and so baffle, and harass, and tax us, that as far as our calicoes, and dishes, and linens, are concerned, we might as well have the old waggons and sailing vessels again in use. All of these custom-house restrictions act as mountains or rivers in the way of intercommunication.

It has been proposed to set all this matter to rights by what is called a treaty of commerce between France and England,—that is to say, an agreement to admit French wines or other manufactures at a low rate of duty, in consideration of a corresponding reduction in French imposts upon the products of our industry. It is said that Prince Louis Napoleon is favourable to such a scheme. We have always given unmistakeable evidence of our free-trade leanings. We have opened our ports to the corn of all the world. No return for this has ever been made us, but we, nevertheless, do not despair. A good example is never thrown away, and we hope the day is not far distant when we shall have treaties of commerce with all Europe. In the present state of our finances this is, of course, impossible. Before opening our ports, and shutting up our custom-houses, we must devise some other scheme for the raising of the revenue. A well-devised system of direct taxation, pressing on all classes of the community in equable proportion, is the proper substitute, and one which, one day or other, will assuredly be made. Who shall be its author? Here is work for the "coming man,"—work which, if well done, will immortalise his name, for he will make war impossible, and spread comfort in the houses of the poor.

OLIVER GOLDSMITH.

"Lives of great men all remind us
We may make *our* lives sublime;
And departing, leave behind us
Footprints in the sands of time—

Footprints, which perhaps another,
Sailing o'er life's solemn main,
Some forlorn and shipwreck'd brother
Seeing, may take heart again."

And this is *the* end of all biographies—for the great end of *life* is action—and so all that comes to us is practical. We are not to meditate and to be charmed—but to act—and to think, and feel, that we may act. But how? According to our own ideal of noblest and best. We aim at perfection, at being faultless—at least we ought so to aim. But how hopeless is such an effort! Our pinions droop with weariness under the labour of so ambitious a flight, and we are compelled to rest far short of our great endeavour. And so at length we come to think that human might was never destined to such achievements—and we become despairingly content with mediocrity. But we see some master-spirit realising our ideal; or, at least, approximating to the realisation of it. We come to have a new and nobler estimate of the capabilities of our nature—its powers to do and to suffer—its skill to turn impediments into helps, and make disasters blessings. And, as we see a "man of like passions with ourselves," surmounting every difficulty, and seeming to defy and conquer even fate itself, we spring upward from our contented littleness, and in our faith and self-reliance is the beginning of our completest successes. And this is one of the uses of great men.



DRAWN BY GILBERT; ENGRAVED BY W. J. LINTON.

Moreover, these men teach us *how* to succeed, as well as that success is possible. *Aspiration* is not *inspiration*—nor a desire to be great, greatness. Still, we do not attach so great an importance to this sort of teaching. True genius needs but to

waked out of sleep, and it will seek its own ways and spheres of activity. Your little men, and your middle men, need to be told what they may *become*, and *how* they may become such. Your truly great men need only to be made to feel what they *are*. Humility and industry must be the allies of genius; but as to rules, guides, maps of life and the like—it is "a law unto itself." But Oliver Goldsmith was far from being a truly great man.

The qualities by which a man becomes illustrious may be all perverted. Excellence—moral quality of any sort—belongs not to powers, but to the use of them. The archangel may become an arch-fiend. The goodliest vessel makes the noblest wreck—and there are solemn teachings echoed back to us from stately and deserted ruins.

Was Oliver Goldsmith an instructor of this sort? Is his power indicated only in the strength of his evil—and are we to admire only what we might have been as shown to us in gigantic crimes which must have needed the prostitution of sublimest faculties? Surely no! He had nothing of this bad eminence.

He is neither a splendid edifice, nor a dismantled ruin—neither a proud ship nor a drifting wreck—he is rather a something well planned indeed, but left unfinished: generous—but at the expense of justice,—benevolent, but lacking discretion. His great characteristic was, indeed, that he was in some very important respects without a characteristic. A man's characteristics are those marks upon him which distinguish him from other men. They have something abiding in them,—they explain the present,—they contain the seeds and a prophecy of the future. But Goldsmith was a creature of impulse; he had no deep convictions—at least none of any practical value. His life had no worthy object steadily pursued, unless it were barely *to live*. We say it



DR. JOHNSON READING "THE VICAR OF WAKEFIELD."—DRAWN BY GILBERT; ENGRAVED BY H. LINTON.

with sincere sorrow, but we believe even his best performances to have been more nearly allied to the instincts of animals than to the reason of men. But this, and much more, should have been in conclusion, rather than introductory. We would only prepare our readers to expect no unmingled eulogy, and remind them that that is not always nearest to truth which we could fondly wish to find so.

Oliver Goldsmith was born at Pallas, county Longford, on the 10th of November, 1728 (though about this there is some uncertainty). His father was the Rev. Charles Goldsmith, very poor and very improvident—miserably existing on about £40 a year at the utmost. But improvidence was an heirloom in this strange family, and the less they had to spend, the more recklessly they spent it. Two years after Oliver's birth his father removed to Lissoy, in the county of Westmeath, having been helped by kind fortune to the rectory of Kilkenny West. This Lissoy is supposed to be the original of the Auburn of the "Deserted Village,"—not with much reason. Much of what has in Auburn "a local habitation and a name," was in Lissoy an "airy nothing." Indeed, speaking of the depopulation deplored in the poem—at a time when he had not been in Ireland for twenty years, Goldsmith says, "I have taken all possible pains in my country excursions for these four or five years past to be certain of what I allege." Auburn indeed was a poetic creation—with Lissoy and many an English hamlet having equal share in its origination.

The beauty of the poem itself can scarcely be exaggerated. With most absurd speculations on wealth and commerce, there is yet enough of nature and the love of old associations, which are common to all of us somewhere or other, to ensure it a most fervent reception. The rural sports—the village school—the preacher's "modest mansion"—the hospitable inn with its "nut-brown draughts" and absolute politics,—these are things we can all *recollect* and all appreciate. And we can understand how, after a life of ceaseless struggle and much keen agony,—of starvation in those streets "where Otway and Butler had starved before"—after the dunning of creditors too remorseless perhaps—and the tyranny of booksellers—and the bitter fruits of his own extremest follies,—the poet should look back with fond regret to the scenes of his comparatively untroubled boyhood—and to Lissoy from the wilderness world, much as Adam and Eve from the earth that had been cursed to the Garden of Eden.

> "In all my wanderings round this world of care,
> In all my griefs—and God has given my share—
> I still had hopes, my latest hours to crown,
> Amidst these humble bowers to lay me down;
> To husband out life's taper at the close,
> And keep the flame from wasting by repose;
> I still had hopes—for pride attends us still—
> Amidst the swains to shew my book-learn'd skill,—
> Around my fire an evening group to draw,
> And tell of all I felt and all I saw:—
> And as a hare, when hounds and horse pursue,
> Pants to the place from whence at first she flew,
> I still had hopes—my long vexations past—
> Here to return, and die at home at last."

Oliver commenced his education under the fostering care of an accomplished dame, Mrs. Elizabeth Delap, and obtained considerable credit—for his extreme dulness. When he had attained the goodly maturity of six years, he was removed to the sterner government of Mr. Thomas Byrne, a quondam quartermaster of a regiment in Spain. Here he became remarkable chiefly for idleness and smallpox, but also for a clever repartee and a knack at scribbling verses. The repartee gained him a reputation in his own family, and they determined to send him to the university,—an advantage which had been already obtained for his elder brother Henry to the great delapidation of the paternal resources. His friends, however, contributed to Oliver's expenses, and especially his generous uncle, the Rev. Thos. Contarine.

Now it is not difficult to say what use a young man of spirit and principle would have made of this generosity. And what Oliver Goldsmith *did* was the reverse of this. He trifled away his time, and fooled away his scanty resources. He pawned the books he should have studied, and spent his money on dinners and dances of men and girls in his college chambers. Meantime his father had died, and his mother was enduring all the anguish o widowhood and the straits of poverty.

And what is the palliation of all this cruelty and folly? Colleg duties were irksome, and Oliver had a natural aptness for singing a good song, and enjoying a good dinner; and so we must just excuse him that he paid for all this out of the pockets and th heart of a widowed mother.

He ran away from college, enraged at the unceremonious dismissal of his dancing party, and would have embarked for Ame rica, or any place else that offered, but he loitered in Dublin, play ing the fool as often as possible, until his resources (come o borrowing and pawning), were reduced to *one shilling* sterling He was brought of course to destitution—and his brother Henry who gave him kind assistance, and mediated with tolerable succes between him and his college tutor. He remained at the Univer sity two years longer with no great success, with an unhonoure degree which, under his circumstances, partook not a little of th nature of a disgrace.

By this time everybody had begun to despair of Oliver, excep his uncle Contarine: his affection still cherished hope, and fur nished resources something more solid. The nephew was prevaile upon to qualify himself for holy orders—poor scapegrace as h was—though to do him justice he had no great liking for thi clerical profession. "To be obliged," he says, "to wear a lon wig when I liked a short one; or a black coat when I generall dressed in brown, I thought such a restraint upon my liberty tha I absolutely rejected the proposal." He changed his mind, how ever, as to the "absolutely rejecting" it. He consented to qualify And this he accomplished in something of his usual felicity of ap propriate means. He had two years of probation to get through and he frolicked them away partly at Lissoy, partly at the Goblin house at Pallas,—chiefly, perhaps, at "the Three Jolly Pigeons' at Ballymahon, made immortal by that genuine comedy "She stoops to Conquer." Here his taste for theology and fitness for th church were doubtless increased by constant intercourse with hi relation Bob Bryanton.

It is not surprising that he was rejected when he made his ap plication to the Bishop of Elphin for ordination, especially when w remember that he appeared before that dignitary in the becomin attire of scarlet breeches. All his friends were very properly dis gusted and very bitterly disappointed, except his all-believin uncle Contarine. He obtained him a situation as tutor in th family of one Flinn (a queer family to take him). He threw u this place, however, because he deemed himself cheated at card and was so rich when he had received his salary, that after buy ing a horse he was in possession of thirty pounds. This he woul most likely have applied to mitigate the distresses of his widowe mother, as generosity and benevolence were his most marke characteristics; but he seemed fated to sympathise only with un worthy objects, and to forget the claims of those who had mo right to expect that he should remember them.

So he set off on a rambling expedition, which lasted for thre or four weeks, and returned to his wondering friends with n money, and a wretched brute of a pony that he had name "Fiddleback." This gross unkindness he explains in a whim sical letter to his mother written in his usual happy style, bu which does him very little credit.

It was next resolved that he should make trial of the law, an he was furnished with £50, and set off to London to the Temple He spent this, however, in Dublin with some gambling com panions, and finally returned to his uncle disgraced and penniles

His next attempt was medicine—in Edinburgh, with a trif less than his usual indiscretion. Then he started for the con tinent, to complete his education at Leyden; there he arrived aft a few whimsical adventures, and remained about a year. H money was, of course, soon spent—more was borrowed an gambled away; so he left Leyden, and set off on the tour of th continent with one shirt, one guinea, and one flute,—this last w the most precious,—and after somewhat long-continued rovin which originated "The Traveller," he found himself finally in th great Metropolis—"leaving hardly a kingdom in Europe whe he was not a debtor."

We shall pass by his divers adventures until we have to d with him as a writer. And literature was in a sorry pligh

when Goldsmith began to write. It was a period of transition. The system of patronage was dying out, and the reading public was yet growing up. Literature had been so long held in leading-strings by royal and noble nurses, that when they withdrew their aid, it was wellnigh tottering to its fall. The change was doubtless ultimately conducive to its good, but in the interval the authors were left in a sorry plight. They were much in the position of the handloom weavers after Cartwright's great invention; the public was about to be benefited at the cost of their temporary suffering. This was the period when Grub-street garrets became famous, and when literature as a profession acquired that character for hardship and precariousness from which it has never since recovered. He who then embraced it had a bitter cup to drink, and in truth Goldsmith drained it to the very dregs. He was at the mercy of the booksellers, at no time a very tenderhearted race, but now right wolfish, getting little and giving less. They had literary men at their mercy. The lords had abandoned them, and the public, which now can put down the mightiest combinations of "the trade," did not trouble themselves about the trials or sufferings of a class with whose feelings and pursuits they felt no sympathy.

Griffiths, the proprietor of "The Monthly Review," met Goldsmith at the table of Dr. Milner. This was a time prodigiously fertile in periodicals, and Griffiths was compelled to recruit his staff of writers that he might successfully compete with powerful opponents. Thus Oliver became one of his contributors—at a small salary, with board and lodging, residing at the Dunciad, Paternoster-row. This was scarcely to his mind, for there was a very uncongenial Mrs. Griffiths, more literary than domestic, meddling with Goldsmith's contributions, and not seldom greatly marring them. This engagement came soon to an abrupt and unfriendly end.

Our poet now lived by miscellaneous literary efforts, having acquired a sort of periodical reputation. And about now was the time of his Green Arbour Court experiences, of his terrible destitution, his remorseless creditors, his compulsory authorship, and his mere struggling into the notice of the public.

His poem of the "Traveller," however, after long hardships, brought him much reputation, and placed within his reach the means of an honest and very respectable existence But he always spent what he had, and anticipated by borrowing that he might have, and was in his greatest prosperity almost always poor.

Our short space renders it impossible that we should follow him through all his history with anything like minuteness, otherwise it would be pleasant to tell of his literary associations with such men as Dr. Johnson—of his blunders and goodnature —of his generosity so ruinous and yet so easily forgiven.

Johnson was one of Goldsmith's best friends, and from his greater strength of character, and greater amount of worldly prudence was well fitted to be his adviser. Though in private he might rebuke his follies, in his absence he warmly defended him against the scoffs and scorn which the worldly are ever prone to heap upon the unfortunate. The incident which one of our engravings is intended to illustrate, is one of the most remarkable in the poet's life, as it brought to light the work on which the greater part of his fame now rests. We shall give an account of it in Johnson's own words:—

"I received one morning a message from poor Goldsmith that he was in great distress, and as it was not in his power to come to me, begging I would come to him as soon as possible. I sent him a guinea, and promised to come to him directly. I accordingly went as soon as I was dressed, and found that his landlady had arrested him for his rent, at which he was in a violent passion; I perceived that he had already changed my guinea, and had a bottle of madeira and a glass before him. I put the cork in the bottle, desired he would be calm, and began to talk to him of the means by which he might be extricated. He then told me he had a novel ready for the press, which he produced to me. I looked into it, and saw its merit; told the landlady I should soon return, and having gone to a bookseller, sold it for sixty pounds. I brought Goldsmith the money, and he discharged his rent, not without rating his landlady in a high tone for having used him so ill."

This novel we need hardly say, was the *Vicar of Wakefield*, a work which seems to bid defiance to all the changes of taste and fashion, and to possess claims to admiration independent of age or country, language or manners. It has been translated into nearly every language of modern Europe, and though it portrays a state of society peculiarly English, its charming simplicity, its truth to nature, its exquisite touches of humour and pathos, and the enlarged sympathy with man in whatever station which it displays have made it a no less welcome guest in Italian saloons or Russian hotels, than in the peaceful retirement of an English household. To live in men's memories and move their feelings, independent of, and unaffected by their caprices is the great triumph of the artist and author, and in this sense Goldsmith has been more successful than any other English novelist; and his written style, as it appears in the *Vicar of Wakefield*, is a model of grace, ease, and purity. The work was at once hailed with acclamations, and its sale speedily enriched the publisher, but brought no substantial benefit to the poor author. While his praises were on every tongue, he was still struggling with poverty, and a bill drawn upon the bookseller for fifteen guineas, was with unparalleled rascality returned dishonoured. He continued for some time after this to toil on as a hack author, living in the Temple, and eking out a miserable subsistence by chance jobs from the booksellers. A story is told of this period of his life, which places his character in a better light than it ever appeared, either before or after, and, were the anecdote not well authenticated, it might, when related of a man whose temperament was apparently so easy, and pecuniary difficulties so terribly harassing, seem almost incredible. Lord North had just taken office; it was a time of great political excitement, as the disputes with America had commenced. The ministry were looking anxiously for support, and, according to the custom of the time, cast about them for hired pamphleteers. An emissary was despatched to secure the services of Goldsmith. He stated his errand, and proffered large remuneration. "I can earn as much as will supply my wants without writing for any party," was the grand reply; "the assistance you offer, is therefore unnecessary to me." The fat churchman who carried the message left him in amazement.

At length came the end, hastened by mental anxiety and frequent bodily privations, and the pressure of debt and difficulty.

On the 25th of March, 1774, he was to be present at a making of the club to which he belonged, but in the afternoon felt so unwell, that he was obliged to retire to bed. He had skilful medical attention and faithful nursing, but all was in vain. He sank rapidly; the anxieties and fears which had made his life a constant succession of miseries, with here and there a bright spot, like those happy days when he basked in the smile of the "Jessamy bride," did not in his last hour desert him. His physician remarked to him that his pulse was beating more rapidly than his state of health, bad as it was, seemed to warrant. "Is your mind at ease?" he then inquired. "No, it is not," was the sad and momentous answer. There was a world of meaning in this last utterance of a great heart broken down by misfortune. It is full of warning and instruction. Before the eyes of him who had already earned a reputation, which shall last as long as the tongue in which his thoughts are enshrined, and on whose head the praises of the wisest and greatest of an age fertile in genius had been poured, a host of wasted efforts, wasted talents, misapplied energies, and lost opportunities rose in black array, and shut out from the view all gleams of a happy future, and all those endearing reminiscences upon which the memory in the last hour loves to dwell. And thus he died, on April 5th, 1774. The worst that can be said of him is, that he was wanting in discretion, perseverance, and decision, and that he was more generous than just. Against those weaknesses we may set off a thousand virtues, if, when rising from a perusal of his works, we are worldly enough to look upon the author's memory with any other feeling than one of sympathising and grateful regret. His sorrows and disappointments in this world amply atoned for the follies which caused them, and the refined and graceful sensibility, the unfeigned love of truth and virtue, that delicate appreciation of the wants and feelings of others, and that longing desire for calm and shelter in the society of those he loved and those who loved him, which he has so beautifully embodied in one of the most exquisite productions of his pen, are claims for the respect and admiration of posterity, which time can never wear out.

THE SCIENCE OF PLANTS.

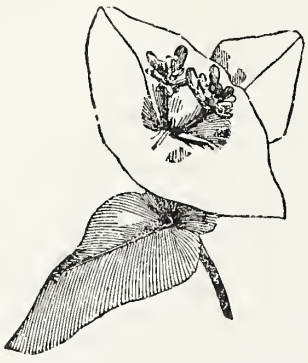
THE *stipules* of a leaf will be observed in the diagram of the pansy (fig. 31), the leaf of which is erect; while the honeysuckle is arrayed in *clustered* leaves (fig. 32). The little mallow has an *orbicular* leaf (fig. 33); the pear-tree an *oval* leaf (fig. 34);

Fig. 31.



Pansy.—Erect Leaves.

Fig. 32.



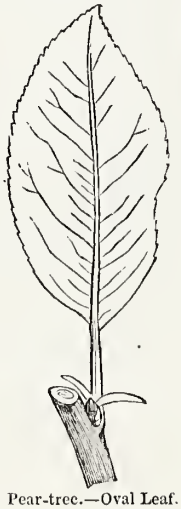
Honeysuckle.—Clustered Leaves.

Fig. 33.



Little Mallow.—Orbicular Leaf.

Fig. 34.



Pear-tree.—Oval Leaf.

Fig. 35.



Daisy.—Spatulated Leaf.

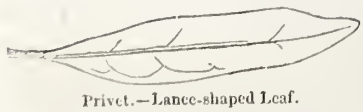
and the daisy, a *spatulated* leaf (fig. 35),—that is, one that is long, narrow, and broadest at the point, resembling in shape a druggist's spatula. Other forms demand examination, as the *deltoide* leaf (fig. 36), having the form of a triangle or Greek delta Δ; the *lance-shaped* leaf (fig. 37), of an oval form, tapering to both extremities; the *capillary* leaf (fig. 38), the *pointed* leaf (fig. 39); the *cordate*, or *heart-shaped* leaf (fig. 40); and the *reniform*, or *kidney-shaped* leaf (fig. 41). Then, there are the *arrow-shaped* leaf (fig. 42); the *shield-shaped* leaf of the nasturtium (fig. 43); the *hairy* leaf (fig. 44); the *prickly*, or spinous

Fig. 36.



Deltoide Leaf.

Fig. 37.



Privet.—Lance-shaped Leaf.

Fig. 38.



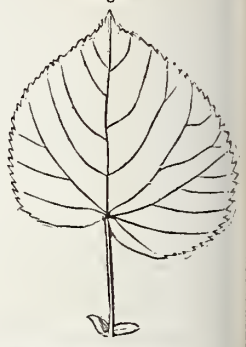
Aquatic Ranunculus.—Capillary Leaf.

Fig. 39.



Rose-Bay.—Pointed Leaf.

Fig. 40.



Lime.—Heart-shaped, or Cordate

leaf (fig. 45); the *toothed* leaf (fig. 46); and the *serrated* leaf (fig. 47), resembling the edge of a saw.

Some leaves require a fuller explanation, as in the following instances:—When a leaf is divided laterally into lobes more or less deep, it is *pinnatifid* (fig. 48); it is *palmate*, when there

Fig. 41.



Ground Ivy.—Kidney-shaped Leaf, or Reniform.

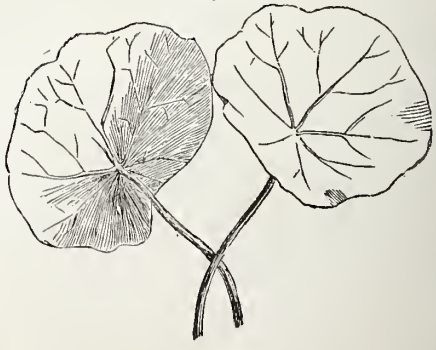
Fig. 42.



Bindweed.—Arrow-shaped Leaf.

are several oblong segments extending to the middle (fig. 49); when the lobes of a leaf are completely isolated, Linnæus called them *pinnate* (fig. 50); and referred it to a compound leaf, but the transition from the entire leaf to this, more recently called the *pinnatisect*, shows that the latter is but a simple leaf, of

Fig. 43.



Nasturtium.

which all the *parenchyma* or pulp has not been developed. Leaves are properly *pinnate* when the leaves spring out laterally from the common petiole. A *quinnate* leaf is easily distinguished (fig. 51). A *pedate* leaf is a ternate leaf, and has its lateral leaflets divided into several others (fig. 52). Leaves are *oppo-*

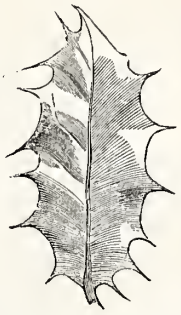
sitely (fig 53), or *alternately pinnate*, according as these leaflets are opposite to, or alternate with each other. When they partake of the form represented (fig. 54), they are *bipennate*; and when fingered, that is, diverging from a common centre,

Fig. 44.



Sun Dew.—Hairy Leaf.

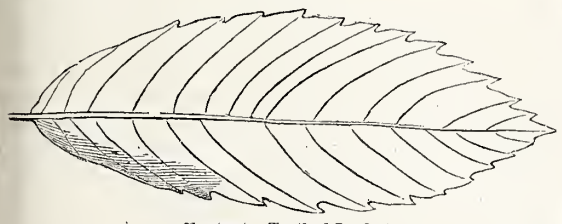
Fig. 45.



Holly.—Prickly, or Spinous Leaf.

like the fingers from the palm of the hand, they are *digitate* (fig. 55). We add only two other varieties of form: leaves are *twice compound* as in fig. 56; and divided at the tendrils, as represented in fig. 57.

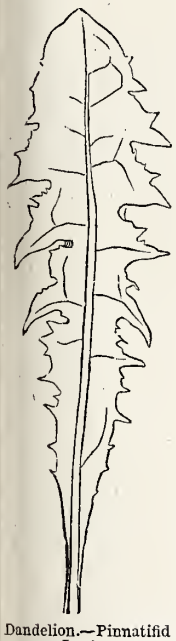
Fig. 46.



Chestnut.—Toothed Leaf.

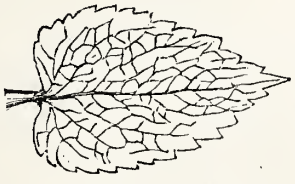
The usual form of leaves is often remarkably changed, and many of the varieties produced in different plants seem designed to collect water from the atmosphere, and to convey it to the roots. The arum tribe, for example, have a deep channel down

Fig. 48.



Dandelion.—Pinnatifid Leaf.

Fig. 47.



Dead Nettle.—Serrated Leaf.

Fig. 49.



Ricinus.—Palmate Leaf.

the midrib of their large expanded leaves, and this is continued along the petiole, so that the water collected by the leaf is thus conveyed to the point of the stem.

It is an interesting fact, that in the arid and thirsty deserts of New Holland, when the earth denies her usual cooling springs of water, the rude, wandering native resorts to the succulent and juicy roots of trees for food and a refreshing draught. Mr. Eyre says in his "Central Australia;" "I had often heard of the native Australians procuring water from the roots of trees,

Fig. 50.



Watercress.—Pinnate Leaf.

Fig. 51.



Cinquefoil.—Quinnate Leaf.

but had never till now seen the actual process. Selecting a large, healthy-looking tree out of the gum-scrub, growing in a hollow or flat, between two ridges, the native digs around at a few feet from the trunk, to find the largest roots. To one unaccustomed to

Fig. 52.

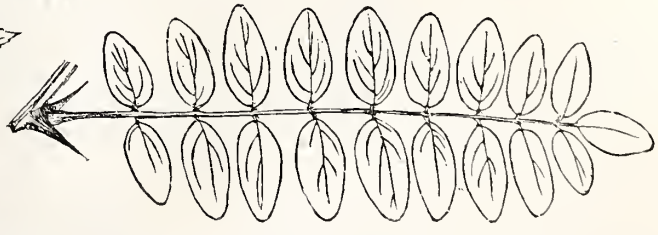


Hellebore.—Pedate Leaf.

the work it is a difficult and laborious thing frequently to find these roots, but to the practised eye of the native, some slight inequality of the surface, or some other mark, points out to him their exact position at once, and he rarely digs in the wrong place.

"Upon breaking the end next to the tree, the root is lifted and run out for twenty or thirty feet; the bark is then peeled off, and the root broken into pieces six or eight inches long, and these again, if thick, are split into thinner pieces. They are then sucked, or shaken over a piece of bark, or stuck up together in

Fig. 53.



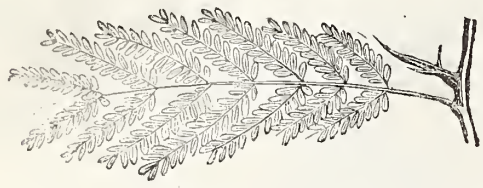
Oppositely Pinnate Leaf.

the bark upon their ends, and water is slowly discharged from them; if shaken, it comes out like a shower of very fine rain. The roots vary in diameter from one inch to three; the best are those from one to two-and-a-half inches, and of great length.

The quantity of water contained in a good root would probably fill two-thirds of a pint. The natives, who from infancy have been accustomed to travel through arid regions, can remain any length of time out in a country where there are no indications of water."

The pitcher-plants, so curiously constructed for holding water, and the Venus's flytrap, which captures insects so effectively, are

Fig. 54.

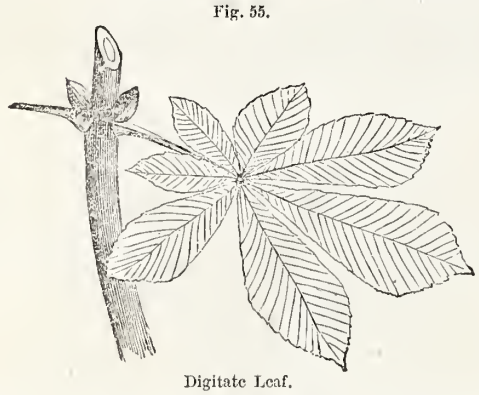


Bipennate Leaf.

remarkable instances of the adaptation of leaves to particular purposes.

As some leaves are extremely minute, others are of prodigious size. The leaf of the talipot-tree, for example, is from three to four feet in diameter; its length and thickness are proportionate, and it can cover several persons from the inclemency of the

Fig. 55.



Digitate Leaf.

weather. It is completely circular, terminates in beautiful rays, and folds up into plaits like a fan. While the rains are falling in Ceylon, a native may sometimes be seen propping up one end of a talipot leaf with a stick, and then creeping under it for protection. At Copang, in Timor island, the people make their drinking-cups and pails from the leaf of a tree. The ends of the leaf are

Fig. 56.



Parsley.—Twice Compound Leaf.

Fig. 57.



Leaf divided at the Tendrils.

drawn partially together and fastened, and made firm by a stick, while the edges are nicely stiffened by a broad hem of its own. A string is fastened to the centre of the stick, which is hung on a pole, and carried across the shoulder, one before and one behind the bearer. A leaf of this tree has sufficient firmness to retain the form into which it is bent; and three strings being fastened through the two ends, it will emit tones like a guitar, and may be even played upon by a bow, like a violin. The leaf of the troolie, of Surinam, is said to attain three feet in width, and thirt in length, and to be used by the natives as a covering to thei houses.

Emerging from their buds in spring, leaves array the trees i beauty during summer and autumn, performing the most import ant functions, until, at length,

> "——————————————— the leaf
> Incessant rustles from the mournful grove;
> Oft startling such as studious walk below;
> And lowly circles through the waving air."

It is from this circumstance that the whole declining season the year is often called "the fall;" while, as so many memorial of decay and desolation bestrew the earth, the comparison Homer may well be remembered:—

> "Like leaves on trees the race of man is found,
> Now green in earth, now withering on the ground.
> Another race the following spring supplies;
> They fall successive, and successive rise;
> So generations in their course decay,
> So flourish these, when those are pass'd away."

DWARFS.

What subject is there over which brooding and prolific fancy ha not thrown its colours? Its ideal creations are of all kinds. No it magnifies, and now it dwarfs the ordinary proportions of thing Always exaggerating realities, it makes them either very smal or very large; very bright, or very dark. And extending i transmuting wand over human beings as well as over inanima subjects, it evokes a giant or a dwarf. Poetry, fancy's tongu even in her earliest words, fabled of diminutive races of me partly in sport and partly in scorn. Homer, amidst his gods an heroes, condescended to speak of the legendary conflicts of th pigmies with the cranes:—

> Thus by their leader's care each martial band
> Moves into ranks, and stretches o'er the land.
> With shouts, the Trojans, rushing from afar,
> Proclaim'd their motions, and provoked the war;
> So when inclement winter vex the plain
> With piercing frosts, or thick-descending rain,
> To warmer scenes the cranes imbodied fly
> With noise and order through the midway sky;
> To pigmy nations wounds and death they bring
> And all the war descends upon the wing.
>
> *Iliad* III. 5 seq.

These pigmies were people about eighteen fingers high. The height is indicated in their name; for the Greek *pygmé* denotes t length of the forearm, from the point of the elbow to the joint the fist. Their abode is placed by Homer near his fabulous ar mystic ocean. Later writers, less indefinite as to the localit place them in the interior of Africa; on towards Ethiopia, ne the sources of the Nile; whither the cranes came from the nor to contend with them for the products of the earth. Strabo, wi an affectation of accuracy, divides pigmies into two classes; which one contained those which were three spans high, and t other, those which were five spans high. "It was," he grave states, "the former who fought with the cranes." Ctesias d scribes a similar race of dwarfs as existing in India. Oth authors speak of the northern pigmies, who dwelt near t legendary Thulé; as well as a race of pigmies in Caria, in As Minor. Ovid, and other ancient poets, found the pigmies sui able employment, or turned them to account as playthings f their wit. A favourite amusement with them was to contra their petty proportions with the huge and brawny dimensions Hercules.

When a better acquaintance with the earth and its inhabitan had caused these fables to fall into disrepute, or consigned them the domain of mythology, grave history began to speak of dwarf without, however, discriminating between the fabulous and t true. According to the definition of Aulus Gellius, dwarfs we human beings of a short and low stature, standing but little abo the soil. In this escription he followed the popular view

dwarfs, according to which, the name is given to individuals of the human race, the size of whom is much below the middle size of their race. But in scientific language, the application of the word dwarf is restricted to the instances on which the diminutiveness of the stature depends on the small volume of all the parts of the body; so that a general reduction of size, in due proportion of the several members is preserved. Buffon and others have attempted more precision. Proceeding on the assumption that the normal height of human beings varies from four to six feet, they consider as giants all whose height is above six feet, and as dwarfs, all whose height is under four feet.

In the period of the degeneracy of the Roman people it is, that dwarfs come into prominence on the page of history. With worn and degraded affections, the voluptuous Roman wearied of natural and ordinary pleasures, sought excitement in what was strange, unusual, deformed, and monstrous. Not satisfied with the rare instances of dwarfs which nature presented, men, greedy of gain, made it a trade to produce dwarfs, in order to pander to the perverted taste or the brutal passions of the great and the opulent. By confining individuals of diminutive size in boxes, made for the purpose, and by the use of bandages devised so as to hinder the natural growth, they produced monstrosities, and made themselves guilty of a species of slow homicide. Pleasures prepared by this horrible and disgraceful art, were worthy of princes whose souls, at once ignoble and atrocious, aimed to diversify the indulgences of debauchery by the sight of pain and blood. Accordingly, among those who most eagerly sought these gratifications, the emperors, Tiberius, Domitian, and Heliogabalus have precedence. Tiberius admitted to his table a dwarf, in whom he tolerated great licence of speech; and who, with a brutality, not unlike his master's, hastened the execution of a citizen charged with a political misdemeanor. Domitian collected a number of dwarfs, in order to form of them a troop of diminutive gladiators. Following his example, Heliogabalus defiled his court with male and female dwarfs. Marc Antony is recorded as having in his house a dwarf less than two feet high. Even Augustus exhibited on the stage a young man of good family of similar stature, and who weighed only seventeen pounds. Scarcely larger was the dwarf whom his granddaughter Julia kept for her guilty pleasures. Pliny mentions the Roman knights, whose height was about three feet. According to Champollion, the Egyptian princes also had their dwarfs. Among the Turks, dwarfs are sought for as objects of amusement. On the conquest of Mexico, the Spaniards found in the palace of Montezuma several dwarfs, who had been purchased for the amusement of the sovereign. Thus, in ancient as well as modern times, in the new world as well as the old, dwarfs have been sought for, and kept in mansions and in palaces for the amusement of princes and the derision of courtiers. Such is the perversity of the human will. In modern times a better spirit has prevailed. That better spirit, however, is not without its exceptions. When towards the end of the seventeenth century the fashion of "court fools," as the phrase was, began to decline, dwarfs were employed in their stead to diversify the routine, and relieve the tedium of noble or royal existence. By force of contrast, those pitiable mannikins enhanced the pleasures of elevated rank, according to the words, "I think of what I am in seeing what thou art." Catherine de Medici brought together a number of male and female dwarfs, between couples of whom she formed marriages, which however remained sterile. More recently dwarfs have become purely objects of curiosity. By men of science, however, their conformation and history have of late been carefully studied, and valuable instruction in physiology has been gained. In this case, as in others, it has been found that for a complete and useful knowledge of nature, nature must be investigated in departures from its ordinary forms, and in the infractions of its own laws. The moral philosopher, too, has found his account in carefully observing the influences produced on character by the disturbing and modifying causes put into operation by dwarfism. This branch of study has been far from unpleasurable, seeing that the littleness of mind which commonly characterises the dwarf, begetting vanity, presumption, and self-conceit, excites a pity, which borders on contempt. It will, however, be not without advantage should it lead to a system of moral and intellectual training, specially adapted to the peculiarities of the case. Of such a training there is great need, for in general, dwarfs are a neglected class.

The cause of dwarfism, after all the researches of the scientific, remains in obscurity. We have here one of those anomalies in which, with all her regularity, nature sometimes indulges. In the constitution of some parents there may be tendencies which issue in the birth of dwarfs. Yet, if such is the case, those tendencies seem as little subject to law as the general fact of dwarfism itself. Mention is made of a woman who gave birth to eight children; of which the third, the fifth, and the seventh attained to the ordinary stature, while the other five were dwarfs. A German female was born of parents of the ordinary height, who, however, had previously produced a dwarf. At the age of eight years this girl was only eighteen inches high, and her weight was about that of a new-born infant. She was lively and gay, but not very intelligent. She did not begin to walk and speak till near her fourth year. Her first set of teeth were late in appearing. Her pulse beat about ninety strokes in a minute.

Disease is sometimes connected with dwarfism in such a way, as to wear some appearance of being its cause. Dantlow, thirty inches high, was very rickety, and even monstrous in his formation. His smallness of stature appears to have arisen from the malformations produced in his bones and limbs, especially in the vertebral column, by the rickets. Though without arms, and afflicted with a grievous malady, he was, at thirty years of age, of an agreeable figure, and full of intelligence and address. He wrote a legible hand in Latin and Russ with his left foot. By the same means he made pen-drawings and engravings of no mean kind. He also knitted stockings, and for that purpose formed needles of wood. He ate, as well as dressed and undressed himself with his left foot. In a word, he executed a great number of almost incredible things. Having a great desire for knowledge, he learned with great facility. At the same time, he succeeded in maintaining a cheerful disposition.

This instance suffices to show, that dwarfs are not necessarily those churls, or those idiots which some authorities have fancied. A proof to the same effect is found in Nannetta Stocker, who was exhibited as a dwarf in the early part of this century. She was very intellectual and had great skill on the piano. The following inscription on her tombstone, which stands in the graveyard of St. Phillip, in Birmingham, expresses the opinion which was entertained of this remarkable dwarf by all who knew her:—

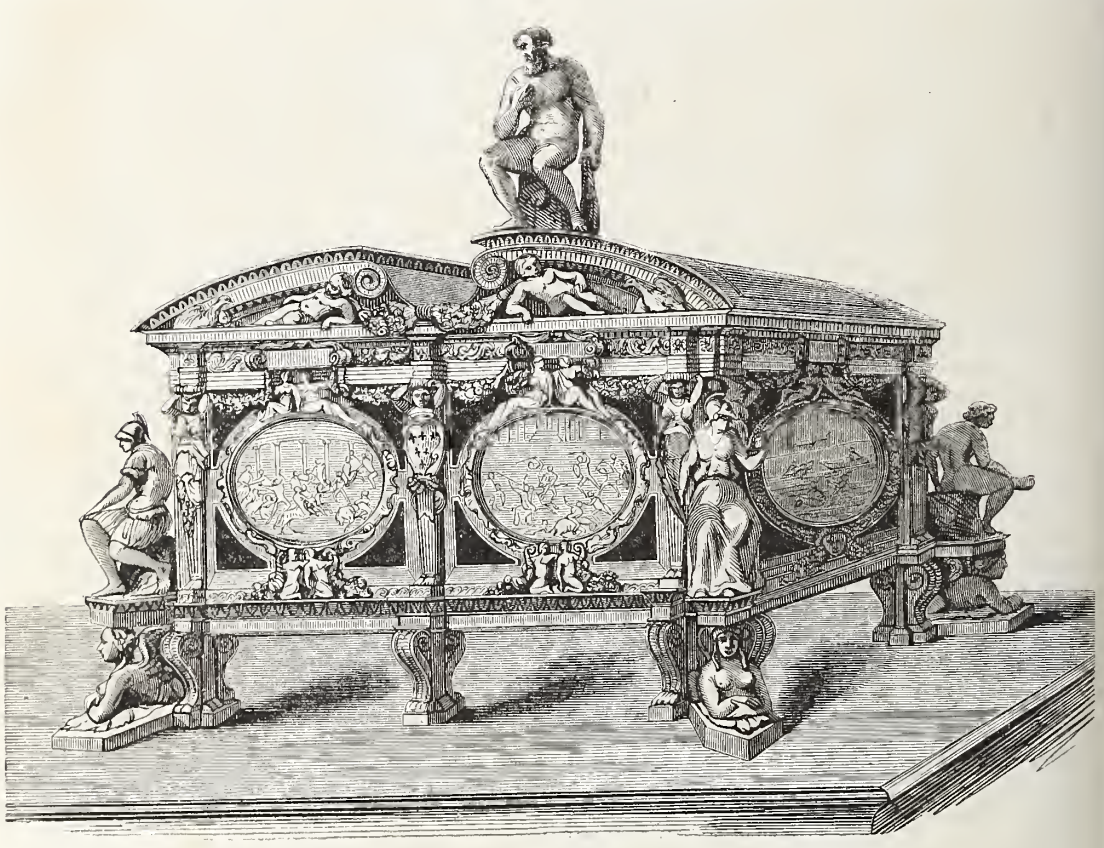
In Memory
OF
NANNETTA STOCKER,
Who quitted this life the fourth day of May, 1819,
at the age of thirty-nine years.
The smallest woman of this kingdom, and one of the most accomplished.
She was not more than thirty-three inches high.
She was a native of Austria.

The cure of dwarfism lies beyond the reach of human art. Yet, whatever tends to improve the natural development and general vigour of the human frame, may not unreasonably be supposed to exert a favourable check on tendencies to the production of dwarfs. Our ordinary modes of life are unhappily detrimental to the soundness, vigour, and due development of the human frame. As an animal, man is subject to the ordinary laws of animal existence; and there is little reason to doubt that a proper regard in intermarriages to the soundness and general well-being of the constitution, would, under the favour of Divine Providence, in due time give birth to a race of men far superior to that which now exists, and less liable to the painful exceptions in distortion and diminutive stature that occasionally appear. The conclusion finds support in the fact, that dwarfs are not seldom rickety. This disorder has its origin partly in a weak and disordered maternal frame, and in bad and ignorant nursing; and might be expected to yield, at least to some extent, to the healing and strengthening operation of that wise physiological education, which all human beings, and specially girls, ought to receive as a part of their training in the home and in the school.

A CASKET OF THE SIXTEENTH CENTURY.

Every examination of the contents of a public museum more and more impresses the thoughtful observer with reverence for the extreme care and skill exhibited by the artists of old. And this more especially in reference to those kinds of objects in which the workman was also the designer. If we linger among the potteries of old Egypt in the upper rooms of the British Museum, or pause before the metal works of Italy, stored up and prized in rich men's cabinets, or if we look curiously into the copper plates of some rare old portfolio—we are equally struck with the evidences of power and fancy in their artists. They were a thoughtful, earnest race, those workmen of old; they loved their art for the art's sake, and not for the mere amount of money which each particular object or work might produce. And so it happens that caskets, arms, sculptures, and engraven gems of the middle ages are prized by the moderns, not so much for their intrinsic worth, as so much gold or silver or marble or jewellery, as for the amount of real, earnest, artistic labour bestowed upon their production—evidences of which they bear upon their several surfaces. It matters not that some of the results of their artist-labours were crude and inelegant; or that in many respects they have been outdone, improved upon, and copied by the moderns; the real worth of their works, the beauty of their designs, and the exquisite finish and spirit of their elaborate conceits will remain as long as the material in which they were formed exists uninjured, and be prized as long as taste and art are loved and appreciated.

As evidence of the truth of what we have advanced, we need only refer to the illustration which graces our page. It is a representation of an elegant silver casket, preserved in the museum of Naples, and by some attributed to the hammer and graver of the celebrated Benvenuto Cellini. Others, however, contend that it owes its birth to the skill and genius of Giovanni Bernardi, an artist who flourished in the beginning of the sixteenth century, and was patronised by the cardinal Hippolyte de Medicis. Be this as it may—and it is almost impossible to pronounce whether or not the great Florentine had any hand in it production,—it is considered by competent judges as a work quite worthy the genius of the time and nation which produced it. It consists, as may be seen, of a large casket, or box, in the form of a temple or palace, supported by four feet representing sphinxes and having at its angles carved figures of Minerva, Mars, Venus and Bacchus. On the top or cover, is a nude figure representing Hercules, and on the sides are engravings on crystal of the battles of the Amazons,—a favourite subject with artists,—Hercules with the Graces, the Triumph of Bacchus, the Sports of the Circus, the Naval forces of Xerxes, &c.; each subject having beneath it an inscription in Latin, expressive of the feeling or fact sought to be commemorated. The moral, as opposed to the physical, power is well exhibited in the battle of the Amazons, where the rude uncultured savages are made to yield to the superior force of reason and civilisation.



SILVER CASKET OF THE SIXTEENTH CENTURY; ATTRIBUTED TO BENVENUTO CELLINI.

In the interior of the casket there is a bas-relief representing Alexander in the midst of his principal captains. And within the casket upon a small shelf, reposes a MS. copy of the famous verses of old Homer. On the cover, surmounted by Hercules are bas-reliefs, representing that hero-child in the act of strangling the serpents, and also his apotheosis upon Mount Eta. Of course, it will be unnecessary for us to go into a particular description of the minor and more minute characteristics of this exquisite casket—its figures reclining gracefully under the entablature, its caryatides supporting the frieze, its shield, flowers, birds, fruit, &c.;—all these, so necessary to the completeness of the design, and so delightfully harmonising with the necessities of the form selected, may be considered but as many proofs of the judgment and skill of the artist-author, be he whomsoever he may.

DRUIDICAL REMAINS.



DRUIDICAL STONES AT CARNAC, IN THE DEPARTMENT OF MORBIHAN, IN FRANCE.

Throughout the whole of ancient Gaul, which included modern France as well as some parts of Germany, and in the British isles, Julius Cæsar, in the century before Christ, found the Druidical form of worship prevailing. At the present day not a vestige of it is anywhere to be met with. It is one of the lost religions of antiquity, of the leading doctrines of which we know nothing, except what can be gleaned from the scanty notices of their rites and ceremonies which ancient writers have handed down to us, and from the remains which in every clime are here and there scattered over the soil. These mighty revolutions, which have annihilated not merely nations and empires, but creeds and opinions, against which the sword of the conqueror was powerless, impress us not more profoundly by the evidence they afford of the mutability of all earthly things, and the vanity of human greatness, than of the deep-rooted hold which the religious sentiment has possessed over man in every age and country.

Travel where we will, the remains of edifices devoted to the invocation of good and the propitiation of evil everywhere cumber the ground. Fantastical and absurd as were many of the forms of faith under which these arose, they deserve our attention not merely in an historical or antiquarian point of view, but from

the testimony which these silent monuments of extinct civilisation bear to the power and truth of the Christian religion.

Of all the forms of faith which took their rise in remote antiquity, Buddhism and Hindooism have only survived the changeful roll of time. In Persia in ancient times Zoroaster was the founder of a system which was distinguished by its sublimity, simplicity, and purity; and over all the vast eastern steppes, and in the burning deserts of Arabia, where the stars glitter so brightly and so kindly, fire alone, as symbolised in the sun and moon and the other heavenly bodies, was the object of adoration. There was no grossness or deformity in this natural and half-pardonable creed. These simple wanderers and mountaineers paid their homage to the Spirit of Good as typified in the most glorious and wonderful of his works; they recognised his constant antagonism with the Spirit of Evil, and they believed that in the end he would be completely triumphant. Their offerings were all in the open air, and their altars were on the mountain-tops. This system was destroyed by Mohammedanism. The undying devotion of its followers, and their courage and fortitude when overwhelmed by the might of their invaders, have furnished materials for one of the most beautiful poems in our language—the "Fire-worshippers" in *Lalla Rookh*. In the recently-excavated ruins of Nineveh we find the most stupendous monuments of ancient architecture evidently devoted to the purposes of religious worship, but what were the forms of that worship, or what were the doctrines which were shadowed forth by those vast masses of sculptured stone, it is impossible to tell. In Egypt, in the days of Julius Cæsar, there was a powerful and well-organised priesthood, learned, discreet, and devoted. Their revenues were immense, their influence unbounded, and their temples imperishable. But though the works of art which arose at their bidding have remained to attest the greatness of their resources, of their tenets, language, and ceremonial nought remains save what a few enthusiastic men have laboured to read in the mysterious symbols which, graven on the face of the everlasting rock, contain the records of a lost and well-nigh forgotten civilisation.

Every one is familiar with the systems of religion which prevailed in Greece and Rome. They, too, are gone. The broken columns and other remains of gorgeous temples which strew the plains of Italy, of Greece, and Asia Minor bear witness at once to the strength of the piety which erected them, and to its evanescence. And away in the trackless forests of Western America, where generation after generation of trees has sprung up, and died and rotted, till the ground is covered in rank luxuriance with their remains; in dark recesses, where the foot of the roving Indian, much less of the European tourist, had never before penetrated, the ruins of mighty temples have recently been found, gorgeously adorned, and covered with monumental effigies and hieroglyphics. Who were the people that erected these? What awful rites were practised here when this howling wilderness was a fruitful garden, when cities, thronged by a busy population, were scattered over the surrounding plains? Did they worship the true God, or murmur incantations before the shrine of some Bubis or Osiris, or offer up human victims to appease the wrath of some hideous Moloch? We cannot tell. Every trace of their name, and origin, and history, and achievements is lost for ever, and the dark forest has for thousands of years covered their resting-places like a pall.

Coming nearer home, these traces of an extinct faith may be discovered amongst ourselves also. In ancient times our fathers, in common with all the other inhabitants, professed a faith which is now known only as Druidism, and which resembled the Egyptian and Hindoo in organization and ceremonial, but surpassed them in cruelty. In each there was an order of priests, living apart from the people, having a separate language, a different mode of life, and a different code of morality. They were the depositaries of all learning and science, and in their hands were the secrets of the future. But the Druids, we are disposed to conclude, had hardly reached the same advanced stage of civilisation as their Eastern brethren. At all events they have not left behind them any records of their sway which display the same scientific skill and artistic cultivation. But it is certain the influence of their votaries was not less great, as their custom of offering up human sacrifices proves. This tendency, in all ages, in all countries, and under all forms of faith, to subject itself to the sway of priestcraft, is one of the most curious features in the history of the human mind.

The most remarkable remains which exist in this country of their mode of worship are the collections of huge stones or rocks placed upright, such as Stonehenge on Salisbury Plain, and in various other parts of the United Kingdom and on the continent, and the huge mounds called tumuli, which have been found in many instances to contain the ashes of the dead and it is probable were in every case used as places of sepulture. One of these mounds, called Silbury Hill, is near Marlborough in Wiltshire, and is considered the largest in the world. It measures 2,027 feet in circumference, and covers an area of 5 acres and 3 perches of land, and its perpendicular height is 170 feet. It was excavated in 1849 by the Archæological Institute of Great Britain, but no remains of any sort were found at the level through which the tunnel was carried. Of the object of its erection there does not exist, however, the shadow of a doubt, as a mound of precisely similar character has been explored in the county of Meath near Drogheda, in Ireland, and found to contain several stone chambers and a number of urns, and the walls were covered with curious inscriptions. It is now generally acknowledged that these Celtic tumuli belong to the same class of monumental edifices as the pyramids of Egypt, and are perhaps of as ancient origin, though not belonging to the same advanced stage of civilisation. The practice which prevails in the Highlands of Scotland and in Ireland at the present day, of each passer-by throwing a stone upon the spot where any person has met with an untimely end, until a heap accumulates which is called a *cairn*, is doubtless a remnant of the custom of erecting tumuli over the remains of the chiefs of the tribe.

But the most wonderful, beyond doubt, of the remains of the Celtic period which still exist, are those huge unhewn stones, set up in circles or without any apparent order, which are popularly believed to have been Druidical altars. These remains are in France, and other countries in which the aborigines were Celts, the only ones which have survived the inroads of Roman civilisation. And grand monuments they are of the ancient energy and devotion of a race, which, except in one or two remote corners, is fast disappearing, or becoming absorbed in the great heterogeneous masses, which now form the population of European kingdoms; rough, unhewn, and unwieldy though they be, they speak of perished greatness in no less solemn tones than the graceful columns of the Parthenon, or the soothing glories of the temples of the Cytherean Venus.

All the smaller erections, known as *cromlechs*, are now universally acknowledged to have been memorials raised in burial places, and to have been once covered with mounds of earth, which have from time to time been removed either for agricultural purposes, or in the hope of finding some treasure concealed beneath. But with regard to Stonehenge, the greatest uncertainty still prevails, and the same may be said of Carnac. Of the former, Mr. Wright speaks thus:—"The ground around Stonehenge is covered with barrows, and was evidently the cemetery of a very extensive tribe; but nothing has yet been discovered to throw any light upon the object or date of the structure itself. The earliest existing legends relating to it describe it as a monument raised to the memory of the dead, a notion which may easily have arisen from the number of sepulchral monuments surrounding it. The earliest writer who mentions it, Henry of Huntingdon, looked upon it as involved in the same impenetrable mystery which still envelopes it, and will probably never be cleared up. From the arrangement of the stones, the most probable conjecture seems to be that which makes it a temple for some kind of worship; but the wild speculations to which this and other suppositions have given rise, should be deprecated by all who are sincerely desirous of arriving at truth."*

These remarks apply to Carnac with equal force, with this exception, that here the stones are unhewn, or only partially dressed with the chisel; but there can be little doubt that it was intended for a place of worship of some sort, and most likely there was a burial-place in the neighbourhood.

* "The Celt, the Roman, and the Saxon."

"Stones," adds Mr. Wright, "which have been classed by our antiquaries under the indiscriminate title of Druidic, but which come under the head of none of the monuments already described, are found in groups, or singly scattered all over the island. Some of these appear to be natural formations, others have been set up at different periods for various purposes; and others are probably the remains of cromlechs and circles. Geologists and antiquaries are now generally agreed that the rocking stones are not works of art, but that they are the result of natural causes, and that they have been classed erroneously amongst Druidical remains."

These erections of unhewn stone may have an older and nobler origin than most people wot of. "And if thou shalt make me an altar of stone, thou shalt not build it of hewn stone; for if thou lift up thy tool upon it, thou has polluted it," said the Lord unto Moses. Farther on, Moses repeats this commandment to the people: "And there thou shalt build an altar unto the Lord thy God, an altar of stones: thou shalt not lift up any iron tool upon them. Thou shalt build the altar of the Lord thy God of whole stones, and thou shalt offer burnt offerings thereon unto the Lord thy God."

Joshua also religiously observed this commandment. We are told in the book which bears his name, "Then Joshua built an altar unto the Lord in Mount Ebal, as Moses, the servant of the Lord, commanded the children of Israel, as it is written in the book of the law of Moses, an altar of whole stones, over which no man hath lifted up any iron; and they offered thereon burnt-offerings unto the Lord, and sacrificed peace-offerings."

These altars of unhewn stones belonged to the same class which our Celtic ancestors erected. The ancient law contained in the books of Moses, doubtless formed the basis of the Druidic faith and ceremonial, as it is more than conjectured that the early Celtic tribes were nearly allied, not in manners only, but in origin, to the pastoral families whom the patriarchs headed. Certain it is, that it was from eastern plains they first issued to people the lonely forests and seagirt isles of western Europe. In proportion as civilisation gained ground, this old architectural ordinance began to be disregarded by the Jews. There is a wide difference between the altar in Solomon's temple, and the rude blocks of stone on which the first sacrifices were offered in the wilderness.

Cut off from the great centres of science, and deprived of the light of divine instruction, the Druids displayed in the ceremonies of their worship that unshaken adherence to tradition which forms so remarkable a feature in the Celtic character. Up to the period of the Roman invasion the Gauls had performed all their religious rites in the open air. Like the tribe of Abraham, their only temples were the recesses of the forest, and their altars unhewn stone. It is not improbable that in this matter they were guided not more by a blind respect for antiquity than by that feeling which prompted the Persians to level the Grecian temples —that everything should be open before the Divinity, and that He would not suffer Himself to be imprisoned within stone walls. Was there not some wisdom displayed in the inculcation of this doctrine? All Pagan idolatry has sprung from the abuse of temples and images amongst peoples too little spiritualised for religion to have nothing to fear from the decorations of art.

In Gaul and Britain we find these erections still, doubtless, as perfect as in the days of Cæsar; but it is in vain that we seek from the stones themselves an explanation of their purpose and origin. Popular tradition has been silent on the subject for fifteen centuries or more. "What mean these stones?" is a question asked in sacred writ, and for some light on the usages which led to the erection, we must seek an answer from the same source.

"And Joshua said unto them, Pass over before the ark of the Lord your God into the midst of Jordan, and take you up every man of you a stone upon his shoulder, according to the number of the tribes of the children of Israel: that this may be a sign among you, that when your children ask their fathers in time to come, saying, What mean ye by these stones? Then ye shall answer them, That the waters of Jordan were cut off before the ark of the covenant of the Lord; when it passed over Jordan the waters of Jordan were cut off: and these stones shall be for a memorial unto the children of Israel for ever." "And Joshua," continues the text, "set up twelve stones in the midst of Jordan, in the place where the feet of the priests which bare the ark of the covenant stood: and they are there unto this day."

These were in truth *monumenta ære perennora*. They had in them all the elements of durability,—hardness of material and the absence of aught that could tempt the avarice of the passing marauder.

The stones erected to serve as a testimony or memorial were not always so numerous as in these cromlechs of Joshua. They were often satisfied with raising a single stone upon its end, like our milestones. Of this there is a memorable example found in the story of the vision of Jacob. "And Jacob awaked out of his sleep, and he said, Surely the Lord is in this place; and I knew it not. And he was afraid, and said, How dreadful is this place! this is none other but the house of God, and this is the gate of heaven. And Jacob rose up early in the morning, and took the stone that he had put for his pillow, and set it up for a pillar, and poured oil upon the top of it."

Various other instances of this kind may be found in the earlier books of the Old Testament, proving that the erection of altars of unhewn stone was a practice faithfully observed in the worship of the earlier Hebrews, and that it was also customary amongst them to commemorate striking events, to mark the burial-place of the dead, or seal a bargain or agreement by the erection of a stone or stones. We find that the Celts were the only race of the western world which have preserved these customs to comparatively recent periods.

It may seem strange at first sight that these traditions of the Hebrew patriarchs should be of any use in a search after the origin of some of the most striking of the antique remains of western Europe; but our wonder ceases when we remember how close were the relations which in early ages existed on the plains of Asia between those shepherd hordes, who, turning in the migration to the north of the Black Sea, arrived at the extremity of Europe under the name of Gauls or Scots, and those who, keeping to the south, settled under the name of Hebrews in the mountains of Canaan, arrested in their progress, like the others, by the sea. Had the Levites been as faithful as the Druids to the ancient custom of transmitting tradition from mouth to mouth, instead of committing it to writing, we should know nothing more of these stones erected in Palestine than we now know of those at Stonehenge or at Carnac.

Without doubt, if we consider these cromlechs only in an artistic point of view, we must acknowledge the superiority of the erections of the Greeks and Romans, which have now asserted their sway over the taste of all Europe. But if we look at them from that point of view, so peculiarly religious, with respect to tradition, we cannot but admire that rigid adherence to the beaten track which brought down to the birth of Christianity the ancient usages of the patriarchal age. So also to explain the origin and object of their monuments, we are obliged to recur to the history of the house of Abraham; and, on the other hand, for aid in the elucidation of that history, we have but to cast our eyes on the plains and forests of our native land.

Adhering to the same principles of religious architecture as the privileged migration of Canaan, our Celtic forefathers, as their power increased with the diffusion and multiplication of their race, were able to produce monuments of equal, but widely-different, majesty. In place of confining themselves to erections of stones of moderate bulk, they dealt with masses equal in magnitude to the obelisks of Egypt, and each generation adding its handiwork to that of its predecessors in buildings without limits, as they were without walls, these stupendous cromlechs were the result. One of the most extensive in the world is that of Carnac, in the department of Morbihan, in France, of which we give an engraving. The number of these immense stones is 4,000 or more, rising to a height of thirty-five or forty feet, and which, running in eleven parallel lines, extend over an area of a thousand square yards. What temple has ever yet possessed such vast dimensions? and who that is awake to the sublime emotions which art labouring in the service of religion must always inspire, could walk unmoved amidst the simple but austere grandeur of these primitive galleries

THE LADIES' DEPARTMENT.

POINT-LACE CRAVAT.

MATERIALS.—Point-lace cottons, and No. 1 Mecklenburgh thread. The cravat to be made up with French Cambrie.

Gentlemen's cravats, for full dress, are now worn so elaborately worked, that we doubt not this design will be welcomed by many of our friends. The pattern is engraved the full size, so that it may be traced and prepared without the least difficulty. The cravat is a very rich specimen of antique point-lace. All the outlines are made in Mecklenburgh thread, No 1, and the ground is in Raleigh bars, worked on a single thread, with Mecklenburgh, No. 100. The flowers and leaves are done as follows:—

LARGE FLOWER AT THE POINT.—The centre division is worked in Antwerp lace, with point-lace cotton No. 70. The smaller divisions of the same part are in Venetian lace, done with point-lace cotton, No. 90.

The English lace, which is seen in the middle of the flower, s done with point-lace cotton, No. 100.

The petals, twelve in number, are done with Mecklenburgh, No. 120; the stitches are as follow:—The two centre are in Antwerp lace, six others are in escalier-stitch, and the remainder in open diamond-stitch.

The leaves are done entirely in foundation-stitch, with lines of Sorrento (over bars of thread) for the veinings.



POINT-LACE CRAVAT.

The centres of the roses are formed of plain Mechlin wheels twisted threads, the round being edged with Brussels. Th petals are filled alternately with foundation-stitch and spotte lace, all being done in Mecklenburgh thread, No. 100.

The Sorrento edging is done with the same thread.

In working the English lace we have lately introduced a gre improvement. Instead of making all the bars in one direction

a single thread, let each one be of a double thread closely twisted. Those in the contrary direction, in which the spots are made, must necessarily be so. This gives the work a very much more even appearance.

For all the other stitches, see the instructions in point lace, No. 3 of the first volume of the ILLUSTRATED EXHIBITOR AND MAGAZINE OF ART.

To put on the cravat ends, hem the cambric neatly, cutting off a little bit at the corner; lay the inner buttonhole line over the hem, and connect them by a row of Brussels edging.

DEEP BORDER FOR A VEIL, IN SWISS LACE.

MATERIALS.—Sufficient Brussels net for a veil or fall; and either French cambric or the finest widow's lawn for the end and sides. Embroidery cotton, No. 10, and point-lace cottons.

Swiss lace is (as many of our readers are aware) the name which has been given, ever since the Great Exhibition, to muslin *appliqué* on net, a style of work in which the Swiss department



DEEP BORDER FOR A VEIL, IN SWISS LACE.

xhibited a manifest superiority to the other continental nations. t is a sort of work very suitable for veils and falls, and particularly adapted to ladies, the materials being of the most moderate rice, whilst the effect is rich and beautiful.

The design which we give may either be worked from the engraving or increased according to the taste of the worker. A erfect section is engraved and may be repeated as often as designed. It will require at least twelve repetitions for the width f a handsome fall. For the sides, the scrolls which form the dge, without any of the branches running from it, will be ufficient.

Mark the muslin or cambric for the entire veil, and tack it on ie net. Then fold up all but a small piece which you begin orking, and tack it in tissue paper to keep it clean. The part o be worked is tacked on a bit of *toile ciré*, and then the whole esign is traced in embroidery cotton. It must then be sewed over. Every part of the engraving which is entirely white is to be left in muslin; the ground is net, and where the fancy stitches occur, both materials are cut away, and the space filled with point lace stitches.

The outlines are sewed over, as neatly as possible, with Mecklenburgh thread, No. 120; and it improves the appearance of the sewing when a thread of the same kind is held in, and sewed over.

The extreme edge of the veil is finished with a line of very neat buttonhole stitch, worked over two tracing threads, run close to each other. After the superfluous muslin and net are cut off, a very good pearl-edging is added.

The engraving indicates the point lace stitches with sufficient accuracy. The English lace is done with sewing cotton, No. 70, the Point d'Alençon with Mecklenburgh No. 100; the Venetian bars, marking the divisions in the cup of the large flowers, in the same, and the English bars, and rosettes in Mecklenburgh No. 160.

KNITTED EDGING.

MATERIALS.—Crochet cotton, No. 40; Needles, No. 20.

Cast on nine stitches.

1st row: Knit 3, make 1, knit 2 together, make 1, knit 2 together, make 1, knit 2.

2nd: Knit 7, make 1, knit 2 together, knit 1.

3rd: Knit 3, make 1, knit 2 together, knit 1, make 1, knit 2 together, make 1, knit 2.

4th: Knit 8, make 1, knit 2 together, knit 1.

5th: Knit 3, make 1, knit 2 together, knit 2, make 1, knit together, make 1, knit 2.

6th: Knit 9, make 1, knit 2 together, knit 1.

7th: Knit 3, make 1, knit 2 together, knit 3, make 1, knit 2 together, make 1, knit 2.

8th: Cast off 4, knit 5, make 1, knit 2 together, knit 1. Commence again at the first row, and knit as before.

GILLOTT'S STEEL PEN MANUFACTORY,

GRAHAM-STREET, BIRMINGHAM.

The lapse of thirty years has produced an astounding revolution in the manufacture of pens. Even at a time not so remote, quills after due preparation were cut with a knife—a process on which we have often looked with interest—the pen-cutter producing in a day two-thirds of a long thousand, consisting of 1200, according to the stationer's computation. At a house in Shoe-lane, London, about 6,000,000 of quills were cut into pens annually; "office pens" of the best kind were then exhibited for sale in the shop-windows after very little use, and at a greatly reduced price; and it was calculated by the makers, that not one pen in ten was ever mended.

Well do we remember the gay flourishings with which the writing-master decorated some of our juvenile performances, and the high complacency with which we regarded his favourite motto, "Vive la plume!" Again and again too, have we looked most admiringly on the splendid specimens of caligraphy which were suspended for many years on the walls of the old Royal Exchange; with the true commercial notification of the names and addresses of their respective writers. One of the celebrities of these, in that day, named Tomkins, considered penmanship to be one of the fine arts; and Chantrey flattered him by admitting this as a reason for a lower charge for his bust. He bequeathed to the British Museum his *opus magnum*—a copy of Macklin's Bible, profusely embellished with the most beautiful and varied decorations of his pen, on the express condition, however, of the acceptance of the bust; thus indissolubly uniting for the eye of posterity, the artist and his work.

There are few of us who are not familiar with the phrase "according to Cocker," but not many city pedestrians, probably, are aware that the writing-master and arithmetician, the author of the "Pen's Ascendancy," taught and resided in St. Paul's Churchyard, or that a copy of "Cocker's Arithmetic" is now so rare and valuable as to be literally "worth its weight in gold." This is not precisely the place, or we might enlarge on the influence which the *pen* has exercised over civilisation, morality, and religion, and get enthusiastic over the poet's lines,

> "'Tis to the pen and press we mortals owe
> All we believe, and almost all we know;"

but we forbear. Our present business is not so much with the moral and poetic pen, "the gray goose-quill," as with the little steel weapon so well known on every desk, and in every counting-house.

As in ordinary use, the friction of a quill pen on the paper, and the softening produced by the ink, tended to wear away the nibs, an effort was made to increase their durability by means of metallic points; but, as what was gained in this respect was lost in elasticity, this method was speedily abandoned. The combination of the two qualities was, however, still sought. Thus, horn and tortoise-shell were cut into nibs, and softened in boiling water; small pieces of diamond, ruby, and other precious stones were then fixed into them by pressure: and one manufacturer formed his nibs of rubies, set in fine gold. Considerable elasticity was, in this way gained; with such pens a fine and beautiful hand could be written, and that with a uniformity otherwise unattainable; and with due care, they were not affected by the labour of several years. Their elasticity was subsequently increased by a spring, which was made to slide backwards and forwards on the back of such pens; but the drying of the ink upon it soon totally neutralised its action, and led to its disuse.

Meanwhile, there was a solitary *steel*-pen to be met with, mounted in a horn case, for the convenience of carrying in the pocket, and sold, by the stationers, as "Wise's steel pen;" it was sometimes given as a prize for writing at a school, or in a family; it was chiefly adopted to those who wanted only its occasional use; and this would, probably, have been more considerably had it been charged at a lower price. This pen was first made by Wise, so far back as 1803; but for more than twenty years, a good and cheap steel-pen remained a desideratum.

It was about the year 1822, when steel pens were only regarded as an humble accessary to the steel-toy trade, from their novelty in a recent adaptation of them to knives and pencil-cases, that Mr. Gillott determined on making them articles of commerce. There was, however, much to be done for the realisation of this purpose, but from this he did not shrink; and he not only invented the necessary tools and machines, but fabricated them himself. It was not long before a reward came for his ingenuity and toil; the success of his labours bringing a great increase to the demand, and calling for additional improvements in the manufacture. In 1828, therefore, Mr. Gillott invented and brought into operation, a self-acting pen-machine, to work by steam-power. Since that time, he has pregressed from year to year in making the best class of steel-pens, and at the close of the year 1850, it became necessary to enlarge his works at Graham-street, Birmingham, to their present surprising magnitude; all the machinery of which, as well as the various ingenious appliances for perfecting the tools, being the result of his own unaided skill and enterprise. How various are the products of his establishment, was seen by those who marked attentively his contributions to the Great Exhibition. Many of our readers will not fail to remember that it included pens indescribably diversified in form, from the magnum bonum, well adapted to the banker's cash-book or the merchant's ledger, to some so extremely minute that they might have been plied by the smallest fingers in Laputa. As a specimen of the huge, there was a pen, exquisitely finished, one yard in length, and weighing five pounds, with which a Brobdignagian might have inscribed a missive to "his lady love;" while the metal of which it was formed, would have made no fewer than 1,092,397, of the tiny pens, which it required good eyes to see, and a microscope accurately and fully to examine. The various processes by which such results are attained must be regarded as deeply interesting by every intelligent mind; and we shall therefore proceed to answer the questions naturally arising respecting them, calling in to our aid pictorial representation; for obtaining which, we were courteously favoured with every facility on a recent visit to Birmingham.

ROLLING OF THE STEEL.

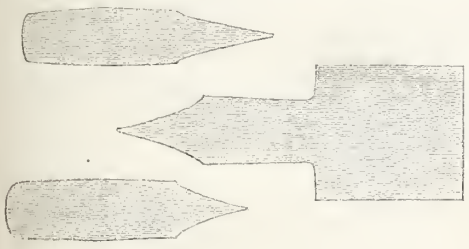
The first objects which we must direct the attention of the reader to are the sheets of steel, apparently adapted to some vast fabric,—the congeners of the sheets of copper about to be placed on a merchant vessel, or one of her Majesty's frigates. No one, at this moment, thinks as he looks at them of steel pens, and yet for them they are specially provided at Sheffield,—for thus is one manufacture dependent on another,—and here they lie in heaps waiting the first process through which they have to pass. This is their being cut in strips by a machine somewhat like a hand chaff-cutter; the width of the strips being regulated by the size of the pens which they are intended to yield. Other processes speedily follow; for they are annealed,—that is, heated in a furnace nearly to fluidity and suffered to cool gradually, so as to lose the hardness and brittleness acquired by hammering in sheets, and to recover their malleability; scoured in sulphuric acid to remove the oxide; and then rolled, of which process we give an illustration. For this purpose two iron cylinders are placed in a strong iron frame; and the distance between them, which of course is greater for thick and less for thin steel, is regulated by two powerful screws placed above. The first rollers to which they are taken are called the "Breaking-down Rollers," and after passing through these, they go to others which are lighter. Thus the strips are rolled from 17 inches in length and 1¼ wide, till they are 66 inches long and 4¼ in width, when ordinary pens are to be made from them; the large pens, called Magnum Bonums, require a far greater quantity of steel. Each strip of steel is gauged to see if it is of the right thickness; and if it is not, it is passed through rollers till this is precisely attained. The gauge, of which there are many, it may be remarked, is simply a small plate of steel having in it several nicks, and being applied to the strip with the hand. In all the processes of rolling, a stream of water constantly falls on the rollers to keep them cool, and for the same purpose

the strips of steel are occasionally dipped in oil. In this way, then, we have a metamorphosis effected, which, if not equal to one of Ovid's, is of no ordinary kind. A boiler-like plate of steel is transformed into delicate metallic ribbons, beautifully-bright, and when held in the hand moving about like a snake. In our illustration, one boy appears passing the strip of steel between the rollers, which are set in motion by steam power, while the other is seen drawing it out.

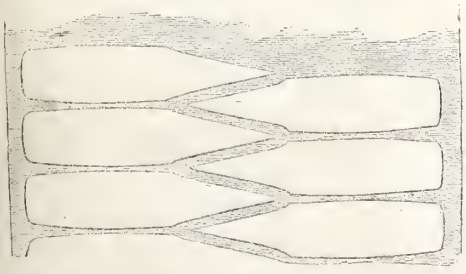
CUTTING OUT THE BLANKS.

The ribbons of steel are now taken up to one of the long rooms, filled with presses, in the working of which females are employed, and the arrangements of which are above all praise, as perfectly conducive to health and comfort. There is, invariably, an abundance of light, warmth and ventilation are fully attended to, while the floor is nicely swept every morning; thus presenting a striking contrast to some manufactories, alike gloomy, dirty, and muggy, where an embargo is laid on pure air, and into which, neither broom nor water has entered for many a long day, though they have an equal opportunity for cleanliness, with all its attendant advantages. We should like to read their proprietors a lesson on this subject, which should be constantly, and, if necessary, painfully remembered, until they had fairly employed all the means of amelioration which only wait their disposition to use them. But, with the passing tribute which justice demands for Mr. Gillott, and this remark by the way, we must observe the operations that are proceeding in one of these light, pleasant, and wholesome-aired apartments.

Astonishment is felt on entering it, at the sight of apparently endless rows of presses, which, like all throughout this establishment, are constructed on the most approved principles, and greatly resemble the one which will be observed in our illustration of "snoppering," a process which will speedily be explained. At each of these presses a female is seated; all busily employed in the cutting out of "blanks," which a glance at the diagram



BLANKS.



PIECE OF STEEL WITH THE BLANKS CUT OUT.

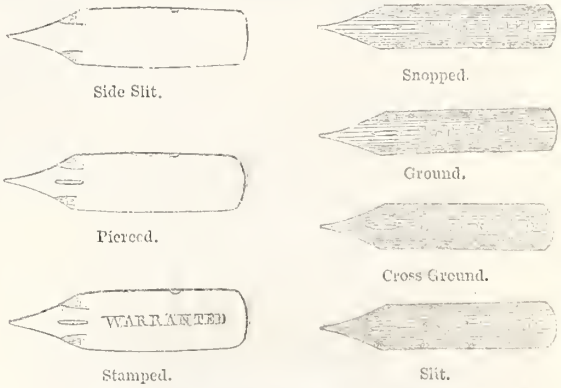
will render intelligible. It exhibits a piece of steel after the blanks have been cut out, and three different shapes of blanks the largest being intended for a barrel pen. The points will be observed ranged together, while the little waste that remains will be at once apparent. The ribbons of steel, after being thus completely riddled, are sent back to Sheffield.

The rapidity with which blanks are cut, is not a little surprising, when the complexity of the process is examined. For each one, the steel has to be nicely adjusted on the die; the punch—attached to the lower end of the screw has to be brought down upon it by means of a handle; and, as successive blanks are produced, due care must be taken for the avoidance of what is technically called "waste." And yet, though a gross contains 144, a female will cut out 300 gross in a day—that is, 43,200 blanks; a remarkable instance of rapid and accurate manipulation.

SIDE-SLITTING, PIERCING, STAMPING, AND SNOPPERING.

The blanks are transferred from the press in which they are thus produced, to another, where, placed on a die, they are *side*-slit, by the descent of two little cutters. They are then pierced, as the diagrams show; but, sometimes, the two processes take place at once. At one end of the room for cutting out blanks, there are two machines, into which long strips of steel are placed, and from which they come both side-slit and pierced. Though the machines are constructed with the greatest accuracy, and though they are kept in the brightest and best possible state for action, they are only used for inferior pens; their products bearing no comparison with those in which the wonder-working fingers of the human hand are successfully employed.

That the embryo pen may be duly prepared for another stage of its course, it is annealed in a furnace, technically called a muffle. A blind man might suppose, on being conducted to the next room, that a platoon-firing was going on, though the sound is not quite so loud. This singular noise is produced by the process of stamping; for each of the semi-pens already described is brought under a stamp constructed on the same principle as those described in action at Messrs. Elkington and Co.'s electro-plate works,* and only differing in its being on a smaller scale. The girl who is exhibited in the illustration places the flat blank side slit, pierced and softened rightly on the die, her foot raises the weight, and, in a second, out comes the pen, bearing upon it the ornament and inscription it was intended to have. Sometimes it is a simple WARRANTED, as in the diagram; at others, there is the Locomotive for the pen bearing that name; but art even here may take a higher flight, as when a pen is adorned by a portrait of Jenny Lind, or by one of our gracious Queen, obtaining thereby a title also. Such devices, however, might be reckoned by hundreds; while all ordinary names, such as the Correspondent's Pen, the Commercial Pen, or the Lady's Pen, have been executed by thousands. Even the distinctive marks of one house have been reckoned at 3,000.



The process called snoppering gives the blank, thus side-slit and stamped, its curve—the convex surface, in fact, of a steel pen. Our illustration shows the concave die and the convex punch, by which the rotundity is produced. In barrel-pens, which are partially rounded by snoppering, the completion of the barrel-form is conducted by children.

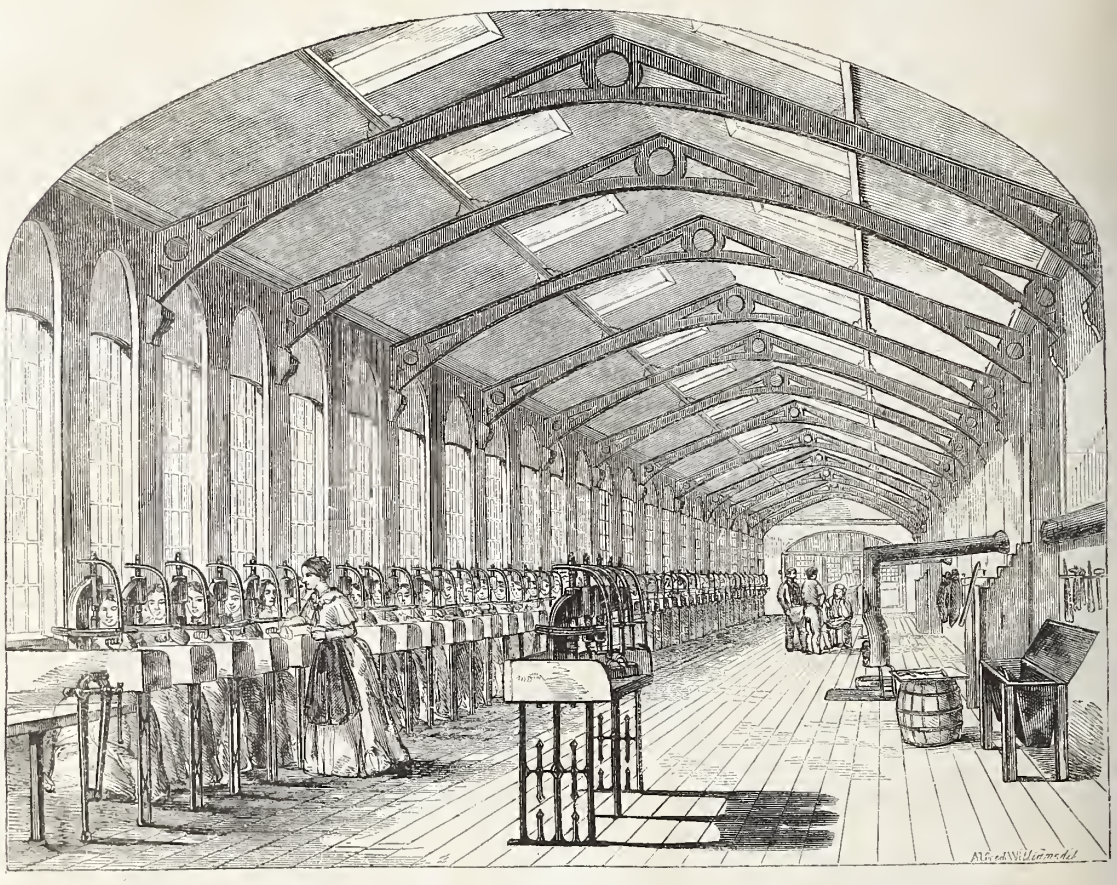
TEMPERING, GRINDING, AND COLOURING.

Up to this point of the manufacture, these pens, it should be remembered, are in a soft-steel state, and might therefore be very easily put out of shape; they are therefore taken again to the muffle. For this process they are put into small iron boxes, fifteen of which hold a hundred gross; a few of which in an empty state will be observed on the floor, in the engraving. A man takes these boxes, in succession, with a long pair of tongs, and one of the doors of the muffle being raised, he puts them in, as is repre-

* Illustrated Exhibitor, p. 295, vol. i.

GILLOTT'S STEEL PEN MANUFACTORY,

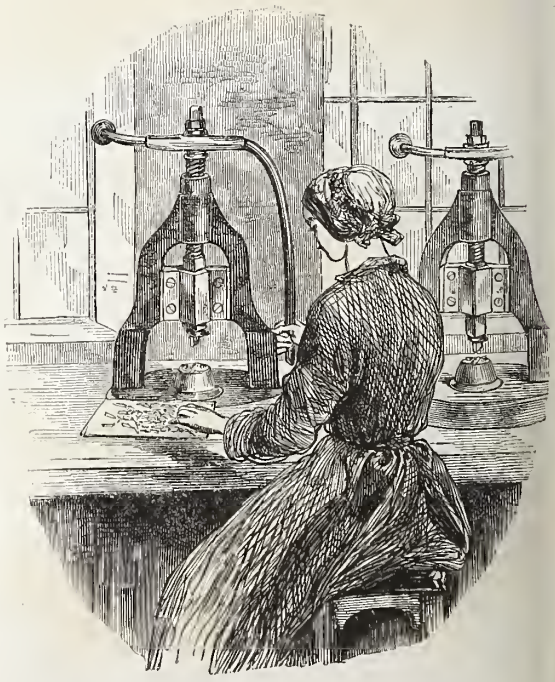
GRAHAM-STREET, BIRMINGHAM.



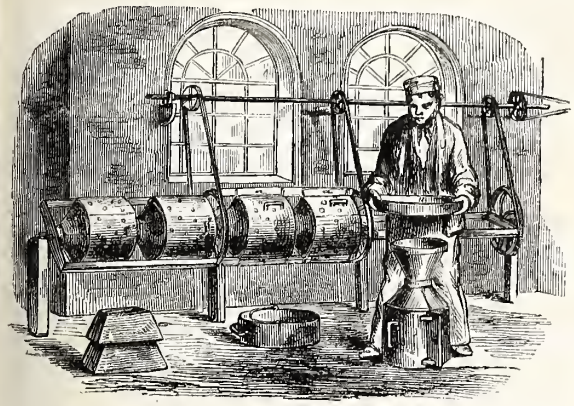
SLITTING ROOM.



STAMPING.



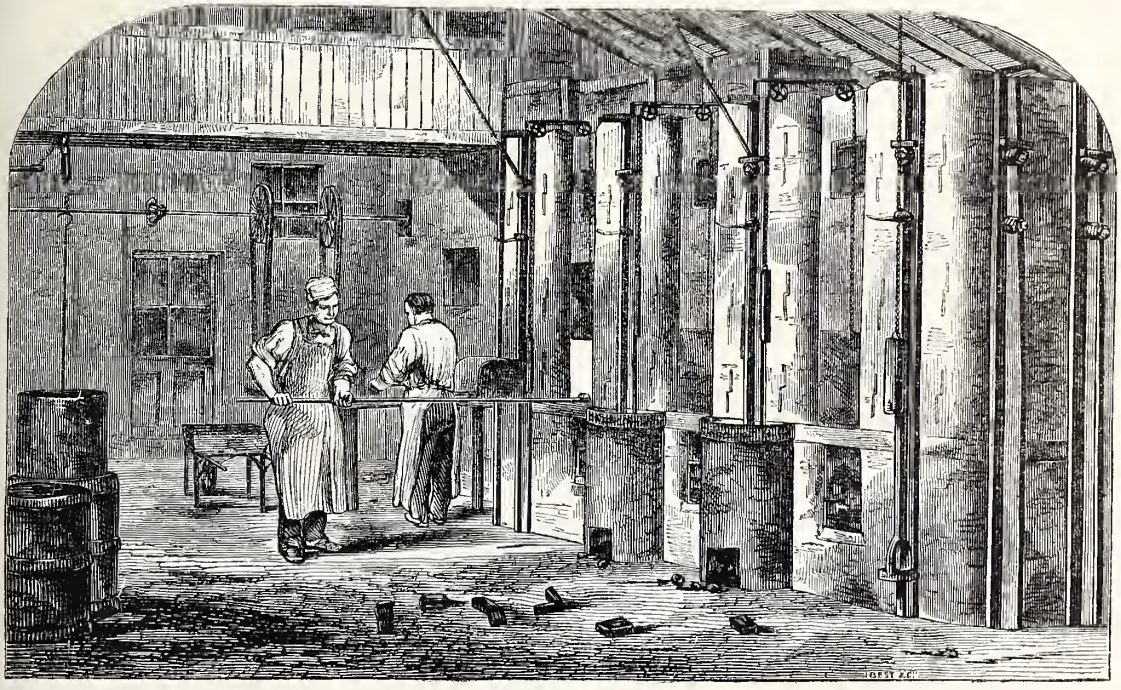
SNOPPERING.



SCOURING.



ROLLING THE STEEL.



THE MUFFLE.



GRINDING.



COLOURING.

sented in the illustration, where they continue about half an hour. On being withdrawn, the boxes are dextrously emptied into one of the cans of oil, which may be perceived on the left of the engraving. After being in the oil for a short time, they are strained, by the inner tin in which they are being drawn out of the outer one. A scouring of them follows, which is accomplished with pounded casting-pot and water, and a little quicklime to prevent rusting. The pens are now cleaned by being put into a tin cylinder, with sawdust, and a rotatory motion being given to the cylinder, they are shaken about, and the oil is removed. In the illustration a man may be observed sifting the pens, the sawdust falling into one of the tins. As they become very brittle by hardening, so that as before they would readily bend, and would now as readily break, they are tempered—that is, brought to the precise state of hardness that is desirable—in an apparatus also used for colouring, which will presently be described.

The Grinding-room must now be visited, where a number of wheels are in rapid gyration, saluting the ear with the hissings of a menagerie of snakes. Each pen is held in a pair of pincers specially constructed, for a few seconds, against a rotating wheel of birchwood, cut across the grain, and carefully loaded to prevent jarring, which would otherwise arise to a fearful extent, but which now runs as easily as possible, without the slightest noise. The wheels are of various diameters and widths, and are covered with buckleather coated with glue and emery. Here another rapid and dexterous process is observable. A tray of pens being placed most conveniently to the grinder, one of them is caught up with the left hand; it is then fixed in the pincers; a momentary hiss is heard as it is held against the revolving wheel, and with a *twit* the pen is jerked out among those which have gone through the operation. Every pen, however has two grindings: one which is longitudinal, and the other which is crosswise, as is shown in the diagram, that the nibs may have their due degree of elasticity. The grinding of steel pens, like all other processes in their manufacture which are of a light description, requiring celerity of finger movement rather than the exertion of muscular power, is committed to females, and thus there is no pain in observing their work, while of this in some other circumstances we cannot but be conscious.

Even now, the steel pen is not complete; but we must pass rapidly over its remaining processes. After it is ground, it goes to be coloured. An old man will be seen in the illustration, turning round an iron cylinder, something like a coffee-roasting apparatus, and filled with pens, over a fire; thus subjecting them to a very gradual and regular heat. About 100 or 140 gross are put into such a cylinder, and about 5,000 gross can be acted on in the course of a day. All the pens, thus far, have a bright steel appearance; many of them are not coloured at all; but those which are, are placed in the cylinder, where, after being exposed to the heat of the fire for five minutes, they assume a bronze colour, and in ten, they are covered with a deep bluish purple; the degree of hardness they possess being denoted by the lightness of the tint, and its diminution by the blueness that supervenes.

When the pens have attained the hue most desirable, the contents of the cylinder are emptied into a large tray, in which they speedily cool, retaining precisely the tint they have acquired. They are varnished by a solution of shell-lac in spirits of wine. In this the pens are immersed, and subsequently, exposed in a riddle to the action of the open air, that the spirit may evaporate. The shell-lac now appears in a delicate white incrustation; but carefully subjected to a proper degree of heat, it is melted, flows over the pen, and presents when cool, a beautiful enamelled surface. As the pens have a tendency to stick together, the workmen discover no little dexterity when tossing them in the riddle, for not only are the pens effectually separated and scattered, but not one of them falls to the ground. An inexpert workman could not do this, but be conscious of a double difficulty; and often allow the pens to fall over the riddle, or to become gregarious when they ought to be solitary.

SLITTING.

The late Rev. W. Beloe mentioned to a friend the following incident. Making a purchase in a stationer's shop, he observed a woman buy a quill pen, and ask more than once for it to be exchanged, on the plea that no one given her would write. The stationer somewhat annoyed, inquired at length, what fault she could find with the pen? The woman's reply was not a little amusing, "How can a pen write when it has a *slit* in it?" And yet, gentle reader, despite of the objection, Mr. Gillott has the temerity to slit all his pens as the very finale of his manufacture. We give a view of the large room in which this is done; the almost endless row of females, each one seated with a press before her is an extraordinary sight, but only one of many in this extensive and important establishment.

The proper slitting of a pen will be found on due consideration, no easy task. Should it be regarded otherwise, let the person take a pair of scissors, and make a slit in a sheet of tin or lead, and look! what a gaping, wedge-like aperture there will be. Compare this for a moment with a steel pen, which requires to be pressed on the thumb-nail to show that it is slit, and the contrast will be fully apparent. And yet, so sharp and nicely-tempered is the slitting tool, and so accurately is the place of the pen determined by means of a guard, that a girl can hardly put it in the wrong position, and a pen slit on the wrong side is of very rare occurrence. So perfect, indeed, is the slit, that it admits of no improvement; and sometimes there are two, which is said to increase the facility in writing. The constant clicking of the machines is a singular sound, only accompanied by the clatter of the women's tongues, relieved occasionally by a buoyant and cheerful laugh.

To secure uniformity of quality, the pens are now tested, by the points of the pens being pressed against a small piece of bone placed on the thumb, and then thrown into heaps, as good, bad, or indifferent. They are now ready to be affixed to cards, or weighed into grosses to be placed in little paper-boxes, and finally sealed with the label that records their quality, and the places from which they go forth. This is the work of a number of little people, whose fingers move with a dexterity and rapidity worthy of their associates.

In this, as in various other mechanical manipulations, the finger is quicker than the eye. The education of the hand in various trades is a more important matter than would at first sight appear. If the reader ever watched the type-founder, as he pours the melted metal into the little steel matrix with one hand, and with the other touches a spring, closes the orifice, swings the mould upward in a way of his own, again touches the spring, and releases the newly-made metal letter, he would understand the peculiar readiness which the fingers acquire by virtue of constant practice. The twisting and straightening the cottons for candles, the rolling up of a cigar, the pasting of labels on pen or match-boxes, and the tying of the twine which finally brings the packet of steel pens into a marketable condition, are all operations which, simple as they appear, are not easily acquired.

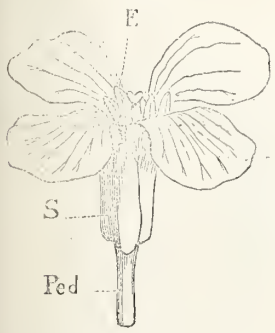
It is thus by the union of talent, capital, and enterprise now described that we have not only good, but cheap steel pens. Eight shillings a gross in 1830, they were sixpence a gross in 1851. Mechanical facilities, meanwhile, have increased the wages of the persons employed twenty-five per cent. The younger girls earn from 5s. to 7s. a week; the elder 12s. to 14s. Some of the skilled workmen obtain high wages, especially those who are tool makers. Mr. Gillott finds employment for about 1,200 pair of hands, he uses 120 tons of steel in a year, and sends out of his establishment ONE HUNDRED AND EIGHTY MILLIONS OF PENS annually. The names of various places figure on the labels, and among them London itself, as the locale from whence multitudes of them are sent forth, but only as so many acts of deference to commercial tactics; they are all actually manufactured in Birmingham, "the toy-shop of the world;" almost the only place for producing these implements for diffusing intelligence,—on which, in this aspect, we would gladly, but we must not, expatiate. Large numbers of them are sent to Paris, others are despatched across the Atlantic to America, and many a letter containing tidings from an emigrant to those about the inglo he has left, and perhaps urging them to join him, was written with a Gillott's steel pen.

THE SCIENCE OF PLANTS.

THE FLOWER.

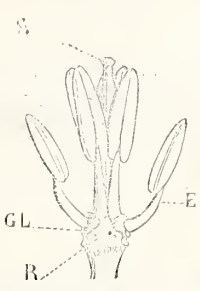
As the human mind is prepared to derive pleasure from certain forms and proportions in visual objects, so it is yielded, in great variety, by the multitudinous races of flowers. Their general structure,—their leaves, their petals, their several parts, in fact, are peculiarly adapted to gratify the taste; while for this there is a very remarkable provision in the delicacy of their tints, the brilliancy of their hues, and the diversified ornaments by which an immense number of them are distinguished. Nor should it be overlooked that many of them regale another power with which we are endowed, by the sweet and grateful odour they so plentcously exhale.

Fig. 58.



Wall-flower.

Fig. 59.



Wall-flower.—Stamen and Pistil.

In addition to these sources of gratification to mankind, these lovely and curious productions are made to perform some highly important functions as regards the economy of the plants themselves, as well as in reference to the animal world. Of these we shall be able clearly to judge as we proceed to examine

THE ORGANS OF REPRODUCTION.

The flower and fruit of a plant are often termed the *fructification*, which Linnæus defines, "a temporary part of vegetables, destined for the reproduction of the species, terminating the old individual, and beginning the new."

Fig. 60.



Lime.—Bract attached to the Peduncle.

Fig. 61.



Gooseberry.—Cluster, or Raceme.

The *calyx*, or *flower-cup*, s (fig. 58), forms the outer part or covering of the flower. It may be of one or of several pieces or leaves, and is generally of a green colour. It is sometimes wanted, in which case the flower is said to be *naked*: and of the calyx many varieties are observable.

The *corolla*, P, is the envelope of coloured and delicate leaves always internal with respect to the calyx, and surrounding the *stamens*, E, and other essential parts. The leaves, or pieces of which it is composed are called *petals*. The *pistil* occupies the centre of the flower (fig. 59). The stem, which immediately supports the flower, is called the *peduncle*; and the point at which all the parts of a flower meet, is named the *receptacle*, R.

The *nectary* is that part of a flower which contains or secretes honey, G L. When flowers consist of one piece, and are called *monopetalous*, this part is the tube of the corolla.

Outside the calyx there may not unfrequently be observed a

Fig. 62.



Horse Chestnut.—Compound Cluster.

whorl of leafy bodies, resembling in appearance the ordinary leaves of the plant; these are called *bracts* (fig. 60).

The *inflorescence* is a term used to denote the particular way in which the flower-stalk is divided; of which we will give several examples.

The *cluster*, or *raceme* (fig. 61), consists of numerous flowers,

Fig. 63.



Cherry.—Corymb.

Fig. 64.



Cherry.—Umbel.

each on a stalk of its own, arranged along a common stalk. The cluster may be *simple*, as in fig. 61, or *compound*, as in fig. 62.

The *corymb* (fig. 63) is an erect cluster, the partial stalks of which are gradually longer as they stand lower on the common stalk, so that the flowers are nearly level.

The *umbel* (fig. 64) consists of a number of flower-stalks of nearly equal length, rising from one common centre or point,

their summits forming a level or convex surface. When the stalks are simple and single-flowered, it is called a *simple* umbel. When the summit of each stalk sends out a number of smaller

Fig. 65.



Fennel.—Compound Umbel.

Fig. 66.



Vervain.—Spike.

stalks, similarly arranged, it is called a *compound* umbel (fig. 65).

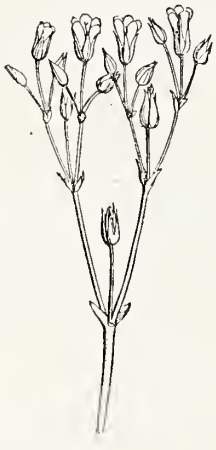
In the *spike* (fig. 66), numerous flowers are ranged along a common stalk, without any partial stalks, or only very short ones. The spike may be *lateral*, *axillar*, or *terminal*, according to its position.

Fig. 67.



Wheat.—Spikelet.

Fig. 68.



Cyme.

Fig. 69.



Cyme-Corymb.

The *spikelet* (fig. 67), is a term applied peculiarly to grasses which have many flowers arranged on a stalk, within a kind of common calyx.

Fig. 70.



Celandine.—Cyme-Umbel.

Fig. 71.



Box.—Whorl.

The *cyme* (fig. 68), has the general appearance of an umbel but only the principal stalks spring from a common centre, while the others are variously and alternately subdivided. Sometimes there is a combination of the cyme and the corymb (fig. 69) as there is also a combination of the cyme and the umbel (fig. 70).

Fig. 72.



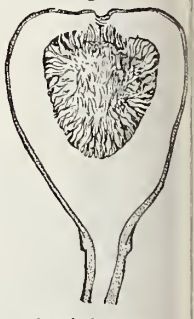
Mallow.—Fasciculus or Bundle.

Fig. 73.



Scabious.—Capitulum.

Fig. 74.



Vertical Section.

The *whorl*, or *verticil* (fig. 71), consists of several flowers which encircle the stem.

The *fasciculus*, or *bundle* (fig. 72), has several flowers of equal height, arising at the end of the stem, variously inserted and subdivided, and forming a close bundle.

Fig. 75.



Groundsel.—Capitules in a Corymb.

Fig. 76.



Pimpernel.—Calyx five times divided.

Fig. 77.



Calyx with five Sepals.

Fig. 78.



Lychnis.—Calyx with five Teeth.

Fig. 79.



Dead Nettle.—Calyx irregular.

The *capitule* is an inflorescence, in which the sessile, or stalkless flowers are formed into a head, which is ordinarily convex, as in fig. 73; but sometimes concave, as in fig. 74.

Fig. 80.



Madder.

Fig. 81.



Chrysanthemum.—Calyx adhering to no limb.

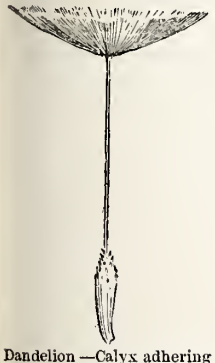
Fig. 82.



Sunflower.—Calyx.

A calyx is *simple* when it is undivided; but *double* when there are two, or rather two sets of leaves. One-leaved, or of one leaf, the pieces or leaves of the calyx are called *sepals*. Of the variety of *calyces*, we give several examples in figs. 76, 77, 78, and 79.

Fig. 83.



Dandelion.—Calyx adhering to a limb as a Plume, simple and stalked.

Fig. 84.



Calyx adhering to a limb as a Plume, compound and sessile.

The calyx is said to be *free* when it does not adhere to the pistil. The limb of the calyx sometimes appears like a little barrel (fig. 80); at others, it adheres to no limb (fig. 81); and sometimes it diminishes into bracts (fig. 82).

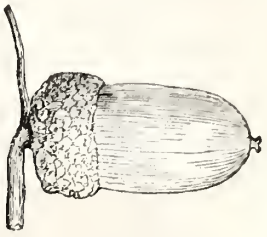
Some important distinctions have been made from the relative position of one part of a plant to another. Thus, when the calyx arises immediately from the disk or expanded top of the flower-

Fig. 85.



Calicule of the Strawberry.

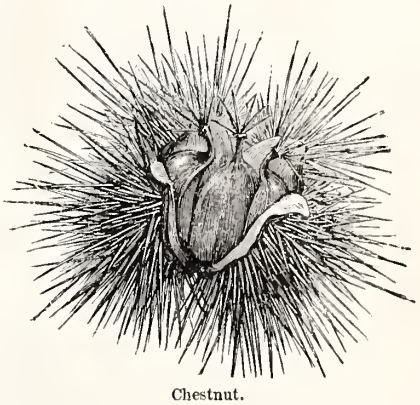
Fig. 86.



Acorn.

stalk, and where the corolla, stamens, and pistil are quite distinct from it, the calyx is said to be *inferior* to the ovary, or non-adherent to it. But where the calyx seems to spring from the

Fig. 87.

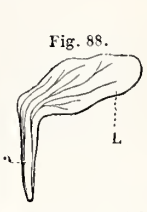


Chestnut.

top of the ovary, it is called *superior*. This conformation arises from the adhesion of the calyx to the wall of the ovarium, so that it forms a tube completely enclosing it, as in the rose, the

Fig. 89.

Fig. 88.

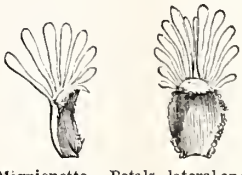


Wallflower.—Petal.



Barberry.—Petal.

Fig. 90.



Mignionette.—Petals, lateral and internal.

apple, &c. In the *Compositæ*, the calyx is present in an undeveloped form, constituting the *down*, or *pappus*, which surrounds the bottom of the corolla, and is attached to the top of the seed-vessel, as in the dandelion (fig. 83).

Fig. 92.

Fig. 91.



Columbine.—Petal.



Celandine.—Cruciform Corolla.

Fig. 93.

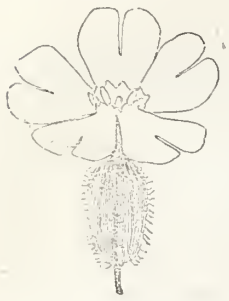


Strawberry.—Rosaceous Corolla.

The calyx (fig. 84), is sometimes accompanied by *bracts* sometimes called *calicules* (fig. 85). The woody cup of the acorn (fig. 86) is composed of little bracts; while that of the chestnut is beset with spines (fig. 87).

The corolla, when monopetalous (fig. 94), consists of two parts: the *tube*, the narrow part being generally enclosed in the calyx; and the *limb*, which is the expanded part. The following varieties of this kind of corolla may be mentioned:—*Strap-shaped* (fig. 104), narrow and flat, unless at the base. *Tubular* (fig. 97), consisting of

Fig. 94.



Lychnis.—Monopetalous Corolla.

Fig. 95.



Pea.—Papilionaceous Corolla.

Fig. 96.



Comfrey.—Flower.

a single piece, hollow, and of nearly equal thickness; this term, however, is used with great latitude, and in the compound flowers applies to corollas of various forms. *Spherical*, or *globose*, narrow above and below, and enlarged in the middle. *Bell-shaped* (fig. 100), having the form of a bell, with the margin bent back. *Cup-shaped*, of nearly the same form, with the

Fig. 97.



Tubular Corolla.

Fig. 98.



Bindweed.—Funnel-shaped Corolla.

Fig. 99.



Periwinkle.—Salver-shaped Corolla.

margin straight. *Funnel-shaped* (fig. 98), inversely conical. *Salver-shaped* (fig. 99), when the tube is cylindrical, but very long, and the limb expanded. *Wheel-shaped*, the same as salver-shaped, but with the tube very short. *Ringent*, or *gaping* (fig. 102), when the limb is divided into two parts, the upper more or less arched, the under oblong; these parts are called *lips*.

Fig. 100.



Bell Flower.—Bell-shaped Corolla.

Fig. 101.



Pimpernel.—Rosaceous Corolla.

Fig. 102.



Dead Nettle.—Gaping Corolla.

Personate, or *masked*, when the limb is divided into two parts, which are closely pressed together, the throat being thus closed.

The *polypetalous* corolla consists of two or more distinct petals or pieces. In each petal two parts are distinguished: the *claw*, which is the narrow portion; and the *border*, or *lamina*, the expanded parts. The following are the principal kinds:—

Cruciform, or *cross-like* (fig. 92), when four petals, having long claws, stand opposite to one another in pairs.

Rosaceous (fig. 93), when roundish petals, destitute of claws, spread out in the form of a rose.

Papilionaceous, or *butterfly-like* (fig. 95), when four petals, differing in form, stand together. These petals have various

Fig. 104.



Fig. 105.



Fig. 103.



Snapdragon.—Masked Corolla.

Foxglove.—Flower.

Chrysanthemum.—Strap-shaped Corolla.

names; the uppermost, which is commonly the largest, is called the *standard*. The two side petals, standing opposite to each other are the wings. The undermost petal is the *keel*.

RAIN.

M. Arago, as reporter of a committee of the Academy of Science, has made a report on the memoir of M. Barral on rain-water. All observers, whether poetic or scientific, have felt curious to know something respecting the gaseous envelope in which we live and breathe. Air was one of the four elements of the ancients. During the eighteenth century, the experiments of successive philosophers led them by little and little to suspect, know, and prove, that the atmosphere was not a simple element, but a mixture of two gases which they called oxygen and azote. Cavendish, Davy, and Berthollet, have proved that the proportions of these gases are at the surface of the earth the same in all climates. Guy-Lussac analysed air taken from the highest elevation reached by a balloon, and found that it consists of the same proportions of oxygen and azote as the air on the surface of the earth. The researches of Dumas, Boussingault, and Regnault have confirmed, after infinite precautions, these results. But do the proportions remain constantly the same in the course of ages? Besides these two gases, the atmosphere contains humidity, or vapour of water, and a small proportion of carbonic acid. The celebrated Dr. Black, of Edinburgh, the discoverer of carbonic acid gas, in one of his reports or memoirs observes, "that the slight crust or film which is formed upon lime-water when exposed to the open air is caused by the fixation of atmospheric carbonic acid; these observations refer to pure air. Winds, hurricanes, and waterspouts, which act violently in all climates, often alter the normal composition of the atmosphere, and mingle with the oxygen, azote, and carbonic acid, dust, and spray. Spray is a sort of dust of the sea. It consists of watery molecules more or less charged with salts, and rises from the foam near reefs and rivers. Towards the middle of the last century, observers began regularly and continually to study the variations of the atmosphere by the examination of rain.

Bergman proved the existence in rain-water of traces of nitric acid. M. Barral has been examining the rain in the court of the Paris Observatory, and has found not only nitric acid, but also along with it ammonia in proportions susceptible of being perfectly measured. M. Barral took especial care when examining the rain-water to prevent the evaporation of the ammoniacal

salts. He subjected his new method to a decisive test. He mixed in distilled water the known proportions of nitrate of ammonia, and he re-formed them by his process with almost mathematical exactitude. M. Barral has stated his results in a tabular form. It appears that the water is unequally charged with azotised matter in the different months of the year. The proportions are nine of ammonia to 22 of azotic acid in 31 parts. It is obvious that the researches of M. Barral are very valuable in reference to health, meteorology, and general physics.

PROHIBITED BOOKS AND FREE LIBRARIES.

If the reader is not to some extent familiar with history, he will scarcely know what the first clause of our title signifies. "Prohibited books, what are they? Have books been prohibited? and why have they been prohibited?" Let him, in thought, go back to the days of his childhood. Can he not call to mind some book, some tract, or some print that was forbidden by his father or his mother? There are few families in which, if books are known at all, "bad books" have not at some time been found and prohibited. The term "bad books" is in the family generally applied to works of an immoral tendency. Such works cannot too carefully be kept out of the hands of young persons. But in all cases of precaution, the reason on which it is grounded should be explained by the parent to the child. Of "bad books," viewed in this light, a flood is still poured forth from the press by low men, who for their own profit and their own pleasure, scruple not to do what must corrupt the minds, pollute the heart, and destroy the souls of their fellow-countrymen. We believe, however, that with the general elevation of the moral tone of the people, the demand for this voluptuous and brutalising kind of writing is becoming less and less, and that, as a vast quantity, and a great variety of useful, instructive, and entertaining literature is now produced at very low prices, and exposed for sale all over the country, we may confidently hold that the day is not very distant when "bad books" of the kind will have been prohibited by good sense, good feeling, and purer tastes. A high literary and moral standard in the public, is the only sure guarantee against immoral publications.

But "bad books" and "prohibited books," are not the same. The best books have been most rigidly prohibited. At this hour, hundreds of the best productions of the English mind are in the class of prohibited books. In some two-thirds of Christendom the Bible is now, in the nineteenth century, a probibited book.

This remark takes us back a little in the history of the world. The discovery of printing in the fifteenth century occasioned a great and rapid multiplication of books. Of these, not a few were found by the Papal church to be hostile to its claims, and adverse to its interests. Not content with making use of the press in order to counteract the tendency of these volumes, the Court of Rome forbad them to be read by any of her children. This in time became a sweeping proscription. It included and includes all the writings of the Reformers. It included and includes also all the copies of the Sacred Scriptures put forth in various translations by Reformers. Our own English Bible is among prohibited books. Only at the peril of his soul's health and safety can a Roman Catholic read our English Bible. Nor indeed, without express permission, is any Roman Catholic at liberty to read the Papal version of the Scriptures. Practically, that version is to a very large extent a prohibited book.

In order that the priests of the Roman church may be able to keep Protestant Bibles and other books out of the hands of their people, the authorities of Rome have published an INDEX or Catalogue of prohibited books. This catalogue, which has been in existence about 300 years, and the last edition of which was published in 1841 (continued by supplements to the present time), contains between five and six thousand works, and at least double that number of volumes, which have been put and for ever lie under the condemnation of the Pope. Among these, are very many of the first productions of the human mind. We subjoin a few names:—Luther, Bacon, Boccacio, Dante, Milton, Locke, Newton, Hallam, Hume, Robertson, Sismondi, Mosheim, Kant, Rousseau, Voltaire, Ridley, Cranmer, Fenelon, George Sand, Balzac:—enough. These have all written "bad books;"—according to the decision of Rome. All the literature represented by these names is bad, dangerous, destructive; at least, if we are to take the Papal Index for our guide.

Besides the Papal court, universities and theological colleges have exercised a supervision over books, and put such as did not please them under their censure. You may, reader, have heard of the *Esprit des Lois* (Spirit of the Laws), written by the celebrated Frenchman, Montesquieu; you may have read portions at least, of Buffon's *Natural History*. Both these works were, when first published, in danger of being prohibited, and only escaped by their authors' complying with what the clergy required from them. The compliance, however, in the end proved to be partial, and was found unsatisfactory. Sometime after, Marmontel, another Frenchman, published his "Belisarius." The work was condemned and censured by the Sorbonne, on the ground that in parts it was injurious to the Catholic faith. In vain had the author attempted to prevent the prohibition by writing to assure the archbishop of Paris that he would sign any confession of faith which that high functionary should put before him, as well as give any explanations that might be thought desirable. The pliancy was great, but it was not accepted. The Sorbonne was not to be thus disarmed, for it had a vivid recollection, that by such means Montesquieu and Buffon had just avoided their censure. The nature of this condemnation you may the better understand if you suppose that the Convocation of the Church of England being revived, the bishops and clergy, armed with legal power, should order the suppression of "The Vestiges of Creation," the works of Jeremy Bentham, and Dickens's "David Copperfield."

What a contrast to this wretched policy of the papacy has recently been presented by Manchester, in the establishment of a "Free Library." We wish to see the example followed in all our cities and towns. Nay, we see no reason why every village should not have its "free library."

The present is an auspicious time for the effort. In the enjoyment of their material prosperity and general well-being, the people possess that ease and repose of mind which both enables and inclines them to turn their attention to self-culture. In the manufacturing districts, the leisure secured by the shortening of the period of daily labour, affords valuable opportunity for reading and study. Low-priced literature has created a taste for intellectual pursuits among the industrial classes; and, in consequence, there exists on all sides an earnest demand for books, and for books of a superior kind. The extraordinary success and extensive circulation of "THE POPULAR EDUCATOR" suffices to prove the existence and prevalence among the people of a healthy love of knowledge, and a strong craving for mental nutriment of a solid kind. The pruriency of appetite, which too long characterised the lower grades of English readers, is rapidly disappearing; and the time seems to have arrived for a decided effort to supply to the English public salutary mental food. And that the rather because the Public Libraries Act, a good but very defective measure, has given to municipal corporations the power of laying what may be termed an educational rate—a rate used for supporting and keeping open to the public any library which may be transferred into their hands.

The beneficial tendencies of books in general need not be here exhibited. But on the special adaptation of public libraries to the intellectual wants and culture of the people, a few words seem desirable. We take it that Englishmen are for the most part a self-educated race. With one exception, the popular schools of our land have been, and to a great extent still are, a delusion. Deficient and defective, labouring under the combined faults of being too little and too poor, the primary schools of England have left the English nation uneducated. Nowhere, except in the Sunday-school, has there existed anything which approached to what the education of a great nation ought to be. Yet the English people are intelligent, possess mental vigour, and excel in practical skill of all kinds. This culture, and this power, are partly owing to that self-government, which under monarchical forms and aristocratical usages, is a marked characteristic and a peculiar privilege of the English nation. But the acquirement and retention of such liberty pre-supposes mental and moral strength.

The origin of that strength may be found in our Saxon blood; but it is not less found in the activity of mind which seeks knowledge, and finds intellectual discipline in every quarter. Among the sources of that information are books and newspapers. The English are and have been a reading people. Scanty, indeed, have been their supplies; but the use they have made of what was within their reach, shows what admirable results may be expected when free libraries have become general. The taste for reading is widely spread; its demands are at present even urgent. No more experiment is required, when we seek for the extension of public libraries. Here the philanthropist has a channel of usefulness already prepared to his hands. He has only to strengthen an already existing tendency. Of all things, a library most conduces to self-education. If with their scanty supplies of reading-material, our English artisans and labourers have done so much for themselves, what may not be expected when they have free access to good libraries in most parts of the country? The English are also a domestic people. As "an Englishman's house is his castle," so an Englishman's fire-side is his school. There does he read, reflect, and take his pure and simple enjoyments. Most desirable is it, that the habits here formed should be encouraged. For that purpose, let us multiply his books. His Bible, his Milton, his John Bunyan, offer rich stores of knowledge, and afford sturdy mental discipline. Let the circle be enlarged. Useful, so far as they go, those good old people's classics left many things unsaid and unsung, which it is well for every one to know, learn, and inwardly digest. Those supplementary treasures, and that additional mental exercise will be presented in public libraries.

Observe, moreover, what it is you give in establishing a free library: you open to a poor man the mine of intellectual wealth and impulse, which is found in English literature. And that literature contains not only the classics of this nation, but, in translations, the classics of all nations distinguished for the higher culture. When, then, you place a "free library" in any locality, you invite the inhabitants, even the least informed and the poorest, to enter into communion with Homer, Virgil, Milton, Shakspear, Dante; with Herodotus, Livy, Gibbon, Hume, Hallam, Macaulay; with the moralists of all ages; with the great masters of fiction, and with distinguished travellers and navigators. These eminent minds, the young man, the young woman, as well as adults, may study in their writings, as well as in those portraits of them which have been drawn by men almost as eminent as themselves. What improvement, what gratification are here implied! But without a public library, the whole rich sphere of good has no existence for working men.

Two facts define the kind of effort which is now desirable. If the English people are given to self-culture and private, nay, domestic study, they want not only libraries, but lending libraries, libraries whence they can freely supply themselves with materials for home-reading. And if—the other fact—if the law, as it is at present, only allows a rate for the support of free libraries, then to private benevolence must we look for the necessary preliminaries. Happily, the benevolence which is wanted, exists in all quarters of the land. Happily too, that benevolence may in many quarters find a basis on which to commence its operations. Few cities and towns are there in which some old library does not exist, or at least some collection of books which may form a nucleus for a "free library," provided with the best intellectual treasures of the age.

In this respect, Manchester is no exception. The edifice now designated "The Free Library," formerly bore the name of "The Hall of Science." It was erected by members of the working classes for the propagation of extreme opinions in religion and in politics. The healing measures passed by the legislature within the last twenty years, and the active benevolence of ministers and professors of Christianity among the people, had shipwrecked the adventurous bark that commenced her daring voyage so proudly a few years before. Some trusted friends of the people, among whom Abel Heywood and John Watts were foremost, desired to see the large and commodious building appropriated to purposes of recognised utility. The latter waited on some known public benefactors, and urged them to take steps for converting it into a lending library. Not deterred by failure, he at length had an interview with Sir John Potter, who entered into Dr. Watts' ideas with the benevolence and energy by which he is characterised. Calling around him some of the first men of the truly great community of which he is a distinguished member, Sir John Potter, assisted by the originator of the plan began and successfully completed the efforts and arrangements which have issued in the placing at the disposal of the Manchester public above 20,000 choice volumes classified and arranged in a well-furnished building, which is at once an ornament and an honour to the city.

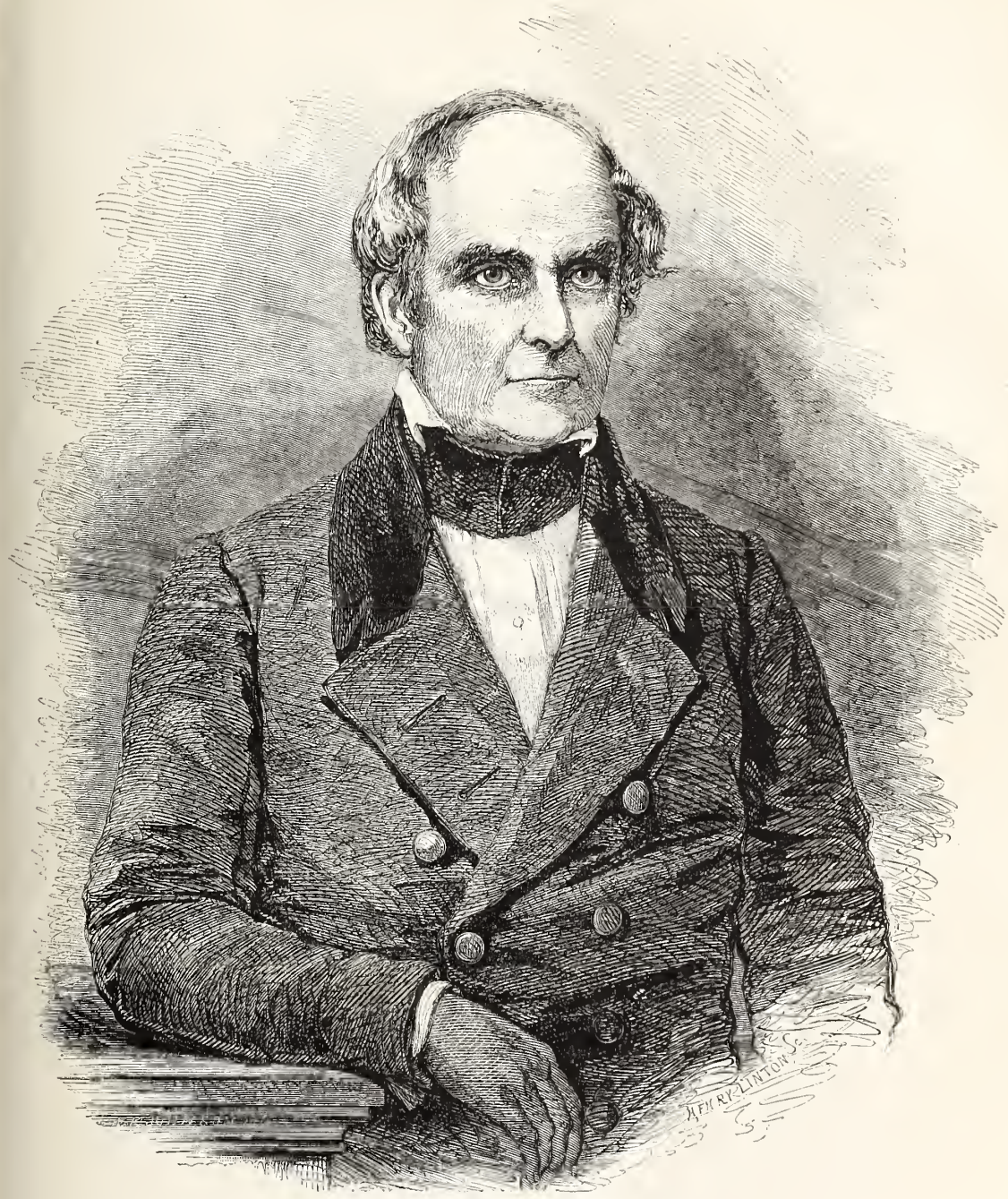
If in the immediate precursors of this the first Free Library established under the new act of parliament, there were more fortunate and favourable circumstances than can commonly be expected, yet some aid is in very many places afforded in the ancient collections of books which exist in connexion with ecclesiastical establishments of various kinds. To one of these a few words may be here given, as exemplifying what may be done not only in Manchester, but in other cities and towns.

The "Free Library" originated by Dr. Watts and Sir John Potter, is not the first, but the second institution of the kind which Manchester owes to native enterprise and benevolence. For two hundred years the inhabitants of that great manufacturing centre have had within their reach the advantages of a "Free Library." In his will, bearing date December 16th, 1651, that excellent and truly benevolent person, "Humphrey Chetham, of Clayton, in the county of Lancaster, Esq.," made provision for the establishment of such an institution; "the same books there to remain AS A PUBLIC LIBRARY for ever." Those books at present amount to above 24,000 volumes, making up a collection in divinity, history, topography, and antiquities, which has few equals in the queen's dominions. Unhappily with the lapse of years and the growth of knowledge, additions have not been made, or made only within a contracted circle and to a small extent. Of modern literature, in consequence, "The Chetham Library" contains only a very inconsiderable portion. A clause in Mr. Chetham's will, requiring "that care be taken that none of the said books be taken out of the said library at any time," has had the effect of practically making the institution almost a nullity for the city. Occasionally a scholar bent on antiquarian investigation enters its fine old antique reading-room, and a few literary loungers frequent the place; but as a "*public* library," Humphrey Chetham's benefaction is wholy useless. The venerable tomes with which the shelves are filled, remain from generation to generation almost untouched, and at this moment stand there with all their dusty honours thick both on and around them.

What a fine opportunity is here for benevolent enterprise! What is there to prevent the throwing open this institution to the people of Manchester? Mr. Chetham's desire to found a "*public* library" has long been without effect. Who will be the person to soothe his injured manes by making his bequest of public use? And, if some atonement for neglects too long tolerated appear desirable, then let Manchester at length acknowledge her numerous obligations to that virtuous and beneficent citizen, by erecting a suitable monument in his honour. The bi-centenary anniversary of his death will soon be here, the 12th of October, 1853; or if preferred, the date of his will, as already given, may be taken. The interval is sufficiently long for the necessary preparations. On either of those anniversaries the "Chetham Library" should be thrown open to the public, and a statue to its founder be uncovered in the highways of the town. The central position of the Chetham Library is a great recommendation, the rather since the new "Free Library" stands on the western edge of Manchester. And the more necessary is it to make the old institution truly public and popularly useful, because three-fourths of the books of the new one, are unhappily kept back from circulation, the use of them being confined within the walls of the building.

We have entered into these details with a hope of effecting some good beyond the precincts of the capital of Cotton. Throughout the kingdom the effort accomplished there, and the other efforts we have indicated, are not only required but possible. All that is needed will come, if only a Watts and a Potter make their appearance, to show their neighbours what is wanted, and how what is wanted may be obtained.

DANIEL WEBSTER.



DRAWN BY F. K. JOHNSON; ENGRAVED BY H. LINTON.

The history of the United States is one long tribute to the virtues and talents of the Anglo-Saxon race. In them alone there is seen no tendency at any time to retrograde; in them alone is exhibited that marvellous capability of discovering in all places, and under widely differing institutions, all the conditions necessary to peace, liberty, and happiness. Place them under a monarchy, and they persevere for eight hundred years in a career which spreads their renown, their possessions, their commerce, and their language to the remotest corners of the globe, and makes them in 1852, the freest, the richest, the most liberally disposed, and yet the most aristocratic and most attached to the throne of all the nations of Europe.

Place them under a republic, and they enter upon a path which in less than a century puts them far in advance of all the world in material prosperity. Linked to a democracy on the broadest basis, they are exposed to all the dangers which may arise from popular passion and caprice, or from internal convulsion; when, lo! as if by magic, statesman after statesman arises, grave as becomes men of Puritan descent, upright, inflexible, and just as their forefathers, but as fertile in resources, as large in capacity, and as striking in outline as the land of their birth,—to control, stimulate, and purify this mighty mass, rushing on to new efforts and mightier achievements. It was naturally to be expected that in a great political convulsion a cluster of giants should arise. God never makes nations travail well-nigh unto death that they may bring forth pigmies. But in the case of America, when the danger was over, when her independence was achieved, these wondrous births were still continued. No sooner does one begin to sink to his rest, than another appears upon the darkening horizon, the offspring of the same prolific womb. One by one they

have passed away, and the latest, but by no means the least, now stands before us—on his brow the same majesty of thought, on his lip the same dauntless determination and energy, and in his eye the same fire of eloquence as the fifty others, who, one by one, in eighty eventful years, have trodden the thorny and dangerous path on which he has journeyed. In every feature of that giant intellect his origin is stamped no less plainly than in the forests, the rivers, and the waterfalls amongst which his youth was passed.

Daniel Webster was born on the 18th day of January, 1782, in the town of Salisbury, Merrimac County, New Hampshire. At that time the place of his birth was a wild meadow on the borders of a primeval forest, where the Indians still roamed in pristine freedom. His father was a Puritan farmer of the old stamp—austere, sober, and industrious, doing everything by rules which had no exceptions, taking his family to church four miles through the woods every Sunday, let the weather be what it might, and rarely disposed to make much allowance for youthful follies or indiscretions. He was one of those iron-souled men who stamped the impress of their character upon the institutions of their country, and still exercise an influence over the national temperament. Rigidly faithful in the discharge of all those duties of private life which his stern creed inculcated, Ebenezer Webster was no less fiercely conscientious when he believed himself the instrument of pouring out God's wrath upon wrong doers. No man tramped to an Indian foray with a clearer eye, or steadier hand, and none ever bore the toil and dangers of the war of independence with greater courage and devotion. His memory lingered in his children's hearts, covered over not so much with reminiscences of tender traits, as respect for rugged kindness, and unbending virtue. Like pictures of mailed warriors in an ancestral gallery, the thought that called him up before the mind's eye, brought not so plainly to view the kindly feelings of the heart as the loftiness of the intellect, and the unyielding sternness of the will.

Young Daniel received his earliest lessons in reading from his mother, and the text-book was the Bible. She watched over his education with tender and judicious care, and it is doubtless to the influence which she exerted in the formation of his character that he owes his greatness and celebrity. Her beauty, truthfulness, and graceful amiability lent charms to the backwoodsman's home, which doubtless dispelled in her children's eyes the gloom which their father's puritanical severity might have diffused around it. Daniel all his life long has had faith in her teachings, and she had no less faith in him. When he was but ten, she prophesied that he would one day be famous; and, in truth, she lived to see him a member of Congress.

The first school which he attended, was that of a hedge-school-master in a log cabin, and thither he trudged during several winters, through the snow, a tin can containing his dinner in one hand, and his spelling-book in the other. In the summer he was kept at home to assist his father in the labours of the farm, laying up a store of health and vigour for future labours. His father had a saw-mill, in which he was occasionally employed as an assistant, and after setting the saw and "hoisting the gate," he employed his leisure moments, even at this early age, while the saw was passing from end to end of the log, usually ten or fifteen minutes, in reading such works in history and biography as fell in his way. Perhaps this old saw-mill, of which not one trace remains, may have had as large a share in laying the foundation of his great fame as an orator and statesman as any school or college. Until the age of fourteen years he continued to attend the district school, and when it is remembered that it was three miles distant from his father's house, and that he plodded thither regularly every day, amidst the snow and frosts of an American winter, it will be readily confessed that few men have ever pursued knowledge under greater difficulties.

When nearly fifteen years of age, he was placed at an "academy," at Exeter, and received his first lessons in English grammar from a Mr. Joseph Stevens Buckminster, who afterwards acquired some reputation in America. Here he was distinguished by his great natural talents, and displayed no small amount of industry. It may furnish some idea of the primitive nature of the arrangements at the academy, as well as of the elder Webster's curious notions with regard to education, that he used sometimes to write for his son, requesting him to come hom for a few days, to assist him in haymaking, or in getting in th harvest. During the latter portion of his stay at school he was diligent student of the Greek and Roman classics, and the nervou and concise vigour of Demosthenes may be clearly traced in mos of his great oratorical efforts. His course after entering colleg was all that could be expected from such a man. He was diligen enough to win all the honours, but wise enough never to becom a pedant. There was but little of his time spent in hair-splittin and "word-building," though no one entered with greater zes in the spirit of any author he chanced to be studying. H graduated in Dartmouth College in 1801; his first oration wa delivered the previous year at Hanover, on the anniversary o American Independence, and was so much admired that it wa "published by request." The pamphlet containing it is muc prized as a literary curiosity in the United States at the presen day. When the time came for receiving his degree, it wa universally expected that the "Valedictory," an honorary addres bestowed on the most successful student in the American colleges would have been conferred on him. To his great chagrin however, he got nothing but the usual diploma. What followe was characteristic. Requesting a number of his fellow-student to accompany him to a field at the back of the college, he there in their presence, tore up the document into a number of smal pieces, and flinging them to the wind, exclaimed, "My ow industry *may* make me a great man, but this miserable parch ment *never* can;" and immediately mounting his horse, rode o heme.

On his return, so sensible did he feel of the advantages which he had derived from a liberal education, that he determined hi brother Ezekiel should have one also. After devising variou schemes for this purpose, he at last hit upon the only one whi in his circumstances seemed feasible. After a long night of famil consultation, and tearful vigils on the part of his mother and brother Daniel Webster rose in the morning with the determination of em bracing, for the present, the avocation of a schoolmaster, that ou of his hard earnings he might supply the funds necessary for hi brother's education, without trenching on the limited means of hi father. We can well imagine that on that day there was a bright halo of glory round his brow, and more peace and satisfactio within his breast, than he has ever since known in fifty years o labour and triumph. It was the first fruits of strong affection the first victory of heroism and determination—his father's iro energy, and his mother's tender heart working together within t make him truly great in his generation.

Ezekiel now hastened to the school in which Daniel had befor been placed, while the latter set out for Fryeburg, in the State o Maine, where he, by teaching, and copying deeds in the offi of the county recorder, managed to eke out a tolerably goo income—350 dollars a year, and had his first taste of law in th study of "Blackstone's Commentaries." He states himself, tha during this period, he was "long, slender, pale, and all eyes indeed, I went by the name of 'all eyes' the country round. He spent the afternoons of Wednesday and Saturday, wanderin over the country trout-fishing, reading Shakspeare, a copy o which he always carried in his pocket, and mayhap, some times dreaming. But he accomplished his object. His broth was enabled to walk in his footsteps, and though he neve soared to Daniel's eminence, the latter had the unspeakab satisfaction of seeing him by his side for many a year, re spected for his virtues, an erudite lawyer, and an accomplishe scholar.

In the year 1805, in the twenty-third year of his age, he wa offered the clerkship of the Court of Common Pleas of Hill borough County, New Hampshire. His father was one of th judges, a circumstance which may cause an English reader t stare; but, considering the primitive state of society in the distric at the time, and the facility with which very plain people attain not only to military, but to legal dignities in America, even a the present day, it need cause no surprise. Very likely Ebenezer Webster, plain farmer though he was, discharged his judicial func tions fully as satisfactorily to his clients, as could have been don by the ablest of his wigged and ermined brethern in Westminste Hall. He had fully as much integrity and honesty of purpose a

any of them, and he was not, as they too often are, obliged to turn aside from following the upright dictates of his own reason and good sense, to dive into the intricacies of an almost unintelligible system. It appears that at all events he was held in high respect by his colleagues, as the bestowal of the appointment on his son, was intended to mark their sense of his merits. The old man was delighted beyond measure, and wrote to Daniel to hasten home, that he might be installed forthwith. The salary was fifteen hundred dollars, a large sum at that time, and all promised well. When Daniel received the news he was studying law in the office of Mr. Gore, at Boston, and hastened to announce it to him with joyous anticipation. Gore heard him gravely, and promptly advised him to decline it instantly, saying, that if he were once a clerk, he would remain always a clerk, and that his plan was to pursue his studies, and try his fortune at the bar, and trust in himself only for success. The young man saw at a glance the wisdom of the advice, and determined to follow it, thus at the turning point in his career luckily taking the right road. He hastened home to communicate his refusal to his father, and give him the reasons. The old man heard him in speechless disappointment. "Well, my son," said he, "your mother always said you would come to something or nothing, become either a somebody or a nobody; it is now settled that you are to be a nobody." Daniel returned to Boston, and the subject was never mentioned after.

His earnings now, even while a law-student, were very considerable, so that he was enabled to save a good deal of money; and learning that his father was in very embarrassed circumstances, he went home, and paid off all his debts. After his call to the bar, he practised law for nine years in Portsmouth, but finding the sphere by no means sufficiently extensive, he removed to Boston, where he took up his residence in 1817. His fame as an advocate was now great, and though Boston was at that time occupied by some of the first lawyers in America, such men as Dexter, Prescott, Sullivan, Shaw, Gorham, and Hubbard,—Webster at once took up a position amongst the foremost. His name soon appeared as senior counsel in many important cases. His practice was not confined to the county of Suffolk, but extended into many of the neighbouring counties all over the state. His manner as an advocate was at first found fault with. He was severe, sharp, and had much of that impetuosity which in an English counsel is called "bullying." But every one soon recognised, what is in reality the foundation of all Webster's greatness —his massive strength of intellect. In this respect we know no one to whom he can be so well compared as Lord Brougham. He was probably never known to deliver a speech either at the bar or in Congress, which was remarkable for what are termed the graces of oratory, poetry, imagery, or pathos. But in dealing out blows of sledge-hammer logic upon an adversary, in a scathing denunciation, in tearing down the stockades in which fallacy and sophistry might entrench themselves, in disciplined force, he has probably few equals either in England or America. His legal arguments are all masterpieces, all well linked and rivetted, welded by a series of heavy strokes from his brawny understanding, and then flung to his opponent with a dash of scornful triumph, that seems to say, "Break it if you can." He never fights adroitly with a rapier, inflicting a thrust here, and a thrust there, and all the while bowing and smiling, as if he never meant it. He rushes on his opponent and demolishes him with a club, a course vastly more dazzling and praiseworthy in the eyes of a democratic and intensely practical people like the Americans. But from one fault, unhappily too prevalent amongst American orators, he is entirely free; he is never personal—never turns aside from the subject to attack the advocate. No man ever heard from Daniel Webster's lips, in the heat of the fiercest debate, one word which the most fastidious English audience would mark with disapprobation.

In the Senate his services have always been acknowledged to be invaluable; he there displayed industry, energy, and soundheadedness. He spoke but seldom; but when he did so, it was generally on some constitutional question, where his logical powers and legal knowledge were brought into play, and where his authority was considered oracular by assemblages of the first men in the country. When speaking to the Senate he invariably manifested great earnestness, and seemed to believe every sentiment he uttered, and he convinced by appealing to the reasoning powers of his listeners rather than to their passions. Before entering on the delivery of a speech, on one occasion, he might be seen absent and thoughtful, making notes. When he rose, his voice was moderate and his manner quiet, with the slightest possible mixture of embarrassment; his right hand resting upon his desk, and the left hanging by his side. Before his first head was finished, however, his voice would rise so as to fill the chamber, and ring again to the remotest corner; then he would fall back into his favourite attitude, with his left hand under his coat skirt, and his right in full action. At this moment the eye would rest upon him as upon one inspired, seeing the invisible and grasping the impalpable. When the vision had passed away, the change was astonishing; he sat at his desk writing letters or dreaming, so that he did not always discover when the Senate was going into a division. Some one of his party had not seldom to jog his elbow, and tell him that his vote was wanted.

Shortly after his appearance in the legal arena at Boston, he found himself opposed in a criminal case, in which the accused, an alleged counterfeiter, was a person of some importance amongst the democratic party, to Jeremiah Mason, then the foremost man at the American bar. In the absence of the Attorney-General Mr. Webster was appointed to conduct the prosecution, and was treated with some supercilliousness by his opponent; but to the astonishment of all present, Webster came down on him like a thunderbolt, in a speech of manly eloquence, full of cutting scorn and invective. He lost his cause, but when Mason was afterwards asked his opinion of him, he replied, "He's the very devil." A higher compliment could hardly have been paid, and coming from such a man, it was doubly valuable. His after career has been singularly smooth and successful; but the incidents of his life are like those of all great lawyers, and the anecdotes which are told of his wit, eloquence, and generosity, would fill a volume. He never had any lengthened connexion with the government of any individual state. All his fame as a politician rests, therefore, on his connexion with the central administration, and for the last quarter of a century, probably no man, save Henry Clay, has filled so large a space in the eye of the American public. He is by them looked upon as the "expounder and defender of the constitution," *par excellence*, and since his first accession to the office of Secretary of State, in 1841, the duties of which bring him in contact with the representatives of foreign powers, no man has so energetically asserted and defended the dignity of the republic. His reply to Chevalier Hulsemann's (the Austrian ambassador) remonstrance, in reference to the conduct of the American government in sympathising openly with the patriotic party in Hungary, was a political paper of the highest order of merit, and probably forms the best commentary in existence on the rights, duties, and position of the Government of the United States. As a specimen of English composition, it deserves to rank amongst the first productions of any period in the history of our literature. Hulsemann retorted, by pointing to slavery in America, as an institution more disgraceful, more oppressive, than any act of Austrian despotism; and it is sad to think that the emissary of a tyrant should thus have it in his power to close the mouth of the ablest minister of a free state. His tolerance towards slavery and slaveholders, has by many people in this country been considered an indelible blot upon Mr. Webster's character, but this has been owing to ignorance of the real state of society in America, and an imperfect knowledge of the duties of an American statesman's position. But those who have a "hobby" of their own, unfortunately, are ever prone to call upon others to ride it, *nolentes volentes*, without regard to their position, or to the modifications which every man's conduct must receive from surrounding circumstances. But there is one temptation to which it must be confessed American statesmen are peculiarly liable; and that is, the bartering of principle for the applause of the mob; for, unhappily, it is too often the mob only which in America decides great questions. From this Webster has not been exempt; and in the opinion of many his conduct with regard to the recent agitation on the fishery question, and the dispute regarding the Lobos Islands, proves that he has fallen a victim to it. All through his life Mr. Webster has been a consistent Whig, in other words a "moderate Conservative," and has

been nominated as a candidate for the presidency by the great Whig Convention; but much as we may desire that a long life of able services rendered to his country should be rewarded by the highest gift which the state can bestow, we grieve to think that he should have given any cause for the suspicion that he had not acted in accordance with the dictates of his experience and enlightened understanding, simply because such a reward was "looming in the future," and a crowd of lawless England-haters had the power of conferring it. Mr. Webster is now full of years and honours, in possession of ample property, of domestic happiness, and of fame which has waxed with his age, and promises at this moment to light him in glory to his grave. America is indebted to him for many of the greatest of her legislative enactments and reforms, as well as the able administration of her foreign affairs, and his country has never shown herself insensible to his great merits.

The admirable head and powerful form of Mr. Webster make him everywhere conspicuous; the brow is ample; the eye deep sunk and dark, and seated immediately below the strongly-marked and shaggy eyebrow; the features and contour denote, most expressively, the strength of every mental faculty—reflection, judgment, memory, analysis, all are there; the countenance in repose sometimes becomes absent and thoughtful, and has the expression of an inward employment of the reasoning powers, independent of all the external objects, and for the time wholly forgetful of their presence; and then, as if the mental exercise had resulted in the most undoubted conviction, the whole becomes radiant with intelligence and animation. The contrast and transition of expression are very fine. His busts represent him more fully than his portraits.

Before the close of the year, it will be seen whether the suffrages of his countrymen will crown his career by the highest reward which American politics can offer; but whether the presidential election ends in his failure or success, can, for all the purposes of lasting fame, make but little difference to him. Even if his own contemporaries do not evince a proper appreciation of his services he has already achieved enough to enable him to leave his name and memory without qualm or misgiving to the judgment of "foreign nations and the next age."

SAINT CECILIA.



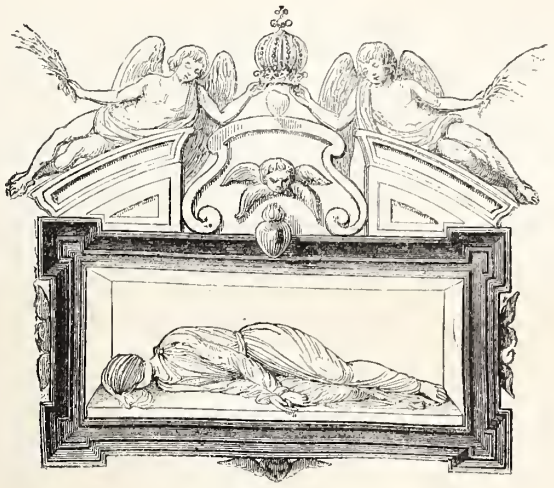
FROM A PAINTING BY DOMENICHINO.

St. Cecilia has become identified with music and musicians. Perhaps it would be hard to say why. But the wisdom of our ancestors has settled the matter, and it is of no very great importance to inquire the data upon which they acted. Says Dryden—

——— long ago
Ere heaving bellows learned to blow,
While organs yet were mute
Timotheus, to his breathing flute
And sounding lyre
Could swell the soul to rage or kindle soft desire
At last, divine Cecilia came,
Inventress of the vocal frame
The sweet enthusiast, from her sacred store
Enlarged the former narrow bounds,
And added length to solemn sounds,
With Nature's mother-wit, and arts unknown before.
Let old Timotheus yield the prize,
Or both divide the crown;
He raised a mortal to the skies,
She drew an angel down.

St. Cecilia, say old writers, was born of a noble Italian family in the early days of Christianity. She became acquainted with the new doctrine. Idolatry and Judaism were both leagued against the faith. The eternal city was the constant scene of fiery persecution. The new religion did not walk in silv

slippers. Its adherents were regarded as the scum of the community. The best of all the party, according to heathen notions, were a poor, beggarly, hunger-starved generation, that had neither riches nor reputation to bear them out. But many of birth and fortune identified themselves with the men of Palestine; and Cecilia, who had been lately united to a wealthy lord, named Valerian, adopted the new religion. Together they abjured idolatry. The old writers tell us that Tiburtius, the brother of Cecilia, and an officer named Maximin, were by their means brought to hear the teaching of Christianity and to embrace its doctrine, and share the dangers of discipleship. Dangers indeed, when the strong arm of bigotry and superstition was exerted to crush them, when to be a Christian was to be the object of contempt and persecution. It was in those days that the senate had passed a decree, that all Roman knights who should embrace Christianity should be deprived of their dignity, and spoiled of their lands, and in case of obstinate adherence to the new faith be put to death; in those days, patrician ladies, under similar circumstances, had to forfeit their property and go into exile. It seemed a hard matter indeed to extinguish the new faith, for what could be done with so many thousands of men and women, of every age and dignity? What words would their persecutors stand in need of, when the disciples of the new religion were in their cities, islands, castles, corporations, armies, tribes, compa-



TOMB OF ST. CECILIA.

city, or according to another tradition, upon the spot where she was put to death. This edifice was subsequently destroyed, but rebuilt again not long afterwards. Tradition says, that the body of the saint was discovered in the catacombs where the Christians were wont to worship; but tradition likewise says, that it was found in the cemetery before-mentioned, wrapped up in a robe of golden tissue, and that marks of blood were still upon the feet. It was removed to the newly erected church forthwith. That church, dedicated to Cecilia, is situated in that quarter of Rome which lies to the right of the Tiber, and which was appropriated by Pope Clement VIII. to the use of the Benedictine monks. It has lately been restored, and re-decorated with peculiar magnificence. In the centre of the church there is an antique vase of marble, remarkable for the grandeur and beauty of its form. The portico of the church is supported by four columns, two of which are of red granite. The interior is decorated with pillars, which divide it into three aisles. The grand altar is covered with a canopy of marble, supported by four ancient columns of black and white marble.

Under the altar is the tomb of St. Cecilia, decorated with alabaster, lapis-lazuli, jasper, agate, and bronze. The statue of Cecilia, by Stephen Maderno, is one of the most remarkable works of art of the sixteenth century. It represents the repose of the body in the tomb. The idea is simple and touching; the



ENLARGED VIEW OF THE FIGURE ON THE TOMB OF ST. CECILIA IN THE CHURCH OF ST. CECILIA, ROME.

ies, aye, in the palace, the senate, the courts of justice, so that hey had only left the temples free? The history of that age is he record of a fearful struggle;—a melancholy picture of oppression and injustice, a tragedy of stern reality. It was in those ays of cruelty that Cecilia, Valerian, Maximin, and Tiburtius ere arrested on the charge of Christianity. The rest is soon told. hey were condemned, and died as martyrs to the faith.

Such is the story of St. Cecilia.

The bodies of the four martyrs were buried in a cemetery, hich was afterwards named the cemetery of St. Cecilia.

In the fifth century there was a church erected at Rome to her onour, and called by her name, occupying, it was said, the recise spot on which her palace had formerly stood in the ancient

execution delicate and complete. The head is veiled. One cannot contemplate the grace of the attitude without being touched by the noblest emotions. It is a most remarkable example of the power which can touch the heart by the simple form and outline, without the expression of the face.

In the church of St. Louis-des-Français, at Rome, there are two admirable fresco paintings by Domenichino. One represents Cecilia distributing garments to the poor; the other, her martyrdom. In the same church there is a fine copy, by Guido, of a portrait of the saint by Raphael.

Tradition says that Cecilia was an excellent musician. That she cultivated this talent, and on this account she is generally represented by painters with a sort of violin, or sometimes playing

on the organ. The picture from which our engraving is taken is by Domenichino, and represents Cecilia surrounded by a choir, and performing on a musical instrument. We said we hardly knew the reason why Cecilia should be taken as the patroness of all musical genius; it rests, it seems, on this tradition.

Everybody knows the power of music. Everybody feels its influence more or less. Orpheus was only the embodiment of a principle in the hearts of us all. The lively strains of music awaken joy and gladness in the mind; its mournful cadences call up melancholy thoughts, and we could weep; its heroic notes have much to do with martial glory; and its solemnity produces solemn thoughts. One of our poets has told us how "once upon a time," when music yet was young, the passions seized from the supporting myrtles, the instrument of sound, and how each proved his own expressive power. How

> "Fear his hand its skill to try,
> Amid the chords bewildered laid,
> And back recoiled he knew not why,
> E'en at the sound himself had made."

How Anger, with his eyes on fire, and wan Despair with sullen notes, and Hope with her delightful measure, and Revenge with war denouncing trumpet, and dejected Pity with her soul subduing voice, and Jealousy in her distressful state, and Love with eyes upraised, and pale Melancholy, and healthy Cheerfulness, ecstatic Joy, and gay fantastic Mirth, all united to show the wondrous power they possessed through music's magic aid; music that, while at one time it calls up bitter memories, at another teaches the feet to dance.

THE SISTERS IN ART.

PART I.

"This is the place, master," said the conductor of a railway omnibus to a passenger, as the vehicle drew up before one of those better class streets which lead from Soho into Oxford-street.

It was the close of a hot summer's day, and already the thick shadows of the evening lay darkly on the pavement; though here and there running downward in oblique strips, or lying like a carbuncle or opal within the panes of the more prominent and cleanly windows, were the last waning glimpses of the sinking sun. About midway, the stranger who had turned down the street pointed out by the omnibus conductor, and who bore much the appearance of a parish-clerk, or country schoolmaster, crossed to the opposite side, where one of these burnished points of light scintillated in the windows of a large curiosity shop, and more intensely, as it seemed, by the contrast of the deepening shadows around, to lie upon the gilding of pictures and china jars, and upon the prismatic hues of mother-of-pearl and tarnished bijouterie. As it was now far too dark to read the name above the door, the old man asked a girl who stood looking in at one of the windows, if the people's name that kept the shop was "Silver."

He had to speak more than once before she answered, and when she did so, and said that she was herself going within, and as that late hour they must ring at the private door, she looked round and showed such a small, old-fashioned, care-worn face, such a look of city poverty and city life, as to be something new and surprising to one fresh from the fields, and comparative absence of ordinary life in a country village. However, her stepped voice were young enough, and in a moment more she had stepped aside to a doorway, and rang the bell.

"Are you, too, going within, my dear?" he asked, seeing that the child remained on the step, and that she carried a bundle tied up in a coarse pocket-handkerchief.

"Yes, sir; father is a tailor, and makes Mr. Silver's clothes, for he has known him many years. I've now brought home a new coat and waistcoat." As she spoke, the door was opened by an elderly servant, who nodding kindly to the child, and answering the old man's question, by saying that her master and mistress were both within, led the way into a hall or passage, that, by its height and width, its carved wainscot, and magnificent old staircase, showed that the house had been a palatial one, when Soho was the Belgravia of the town. It were, even now, no air of neglect, for the stairs were richly carpeted, the oak shone like a polished mirror, and from old blue china vases of great size and beauty, grew up tall plants that swept the balustrades. Though his thoughts were occupied far otherwise, as our story will show, the child as she stood beside him, evidently mistook the old man's gaze for one expressing curiosity or surprise, for she said in a low voice as she touched him on the arm, "Mr. Falkner, the doctor, lives here, sir, and has for many years, and that's his staircase." But he evidently did not hear her, for he made no answer.

In a few minutes the old servant returned, and opening a side-door led the way partly through the shop into a large room at the rear. It seemed used both as a counting and sitting room for it contained a high desk and shelves of dusty ledgers, and glass-cases filled with small articles of rich china and bijouterie, whilst a parrot in a tub-like sort of cage, a fat apoplectic dog on the hearth-rug, a cloth laid for supper, and several articles of needlework scattered on a little table showed its domestic use. Before he had advanced a yard within the room, or even had a glance of Mrs. Silver at her work-table, prominent and ripely round as she was, the country stranger was brought to a halt, by a dry stentorian voice exclaiming as if from the ceiling, "Well sir; rather a late hour for business!" and looking up, as the voice led him to do, he beheld perched before a very high narrow desk, just in front of the door leading into the shop, and in the neighbourhood of the ledgers, a lank cadaverous-faced man of about sixty, who was glancing down between the bars of the desk, like an old eagle from its eyry. He had a pen outstretched in his long, lank, right hand, and a small oil lamp of about the size of an orange standing on the desk, threw its light so as to give a still more keen expression to his face.

"I'm not come on ordinary business," answered the old man quietly, "either to sell or buy, or I should have waited till the morning. But I have come on business that I thought might be best spoken of when your day's work was over, and you were quiet and alone. My name is Ralph Weod—I'm parish clerk, and master of a small freeschool in a Yorkshire village; and my object in coming purposely to see you from a distance so great, you can first hear, and then dismiss or entertain as you please. I only say, that if you think of it as I propose, it is one which will bring blessings to you."

"What are blessings to some, are evils to others ——" began old Silver, drily, as he glanced down from his perch still more curiously upon the schoolmaster; but he was interrupted by his little fat wife, who, giving a sort of scream, exclaimed, as she rose from her chair, and came towards the stranger, "William, William, hush! it's news at last of our poor Anne. I knew it—yes—I know my dreams would come to something. Pray sit down, sir—pray sit down—our poor Anne has been lost to us many years." And in a moment more, with both his hands in hers, the little fat, prosaic, commonplace woman stood before the old schoolmaster, deeply moved, and listening with breathless interest for his answer to her question.

"Yes, ma'am," began old Wood, "it is about your sister; and—

"Is she well—is she coming to us?—oh! it is many years since she went;—is she —" Not staying for an answer, the little woman was breathlessly heaping question upon question, till she found none had a reply, and then she stopped abruptly, for the old man's silence was the most significant of answers.

"She is dead," he said gently, "she has been dead ten years, but she left a daughter, whom my business with you concerns."

"Dead!" This was the saddest news any one could bring Mrs. Silver, prosaic and worldly as she was; for of late years since her love of money had been satisfied to the full, since she as many gowns as she might, fill her drawers as she would, there was still a void and a need left, deep had been her repentance for that harshness, and that permission of it in others which had driven her young and worthy sister from her roof. This circumstance had happened twenty years before, and in all that time till now, not a word had reached them concerning her, as to her life or death, or whither she had gone. All had been one blank as sad and deep as that now known to them.

As customary when in trouble, Mrs. Silver sought the side of her old servant, who yet remained in the room, and on her shoulder wept out her moving grief; but her husband, not so easily touched

still kept his seat, and untying the bundle which the child had brought, effected to examine the cloth and workmanship of his new coat and waistcoat, whilst he said drily, "So Anne married, did she? She changed her mind then, and grew wiser. Here she made fuss enough about the same matter, and refused Van Cratz, the Dutch picture-dealer—though he'd sixty thousand pounds—and two Rubens' that were worth five more. Ah! those Rubens'; I never made such a miss before; for if the girl would but have married the old man, I should have got 'em for a hundred or so apiece!" And Mr. Silver, here stretching forth his new coat and waistcoat along the desk, laid his finger thereon; and looking down, shook his head at the child who stood there, in a manner which plainly said, "That old story of the Rubens' is one long past remedy; but I can grumble here, and find fault—and do as I like—and *will*."

"So Lizzy," he said in turn, addressing the child, as she stood trembling beside his desk, for she always trembled at Mr. Silver; "Your father's been helping your lodger, the image-maker up stairs, has he, and left my coat and waistcoat to your mother's needle. Well! for such cloth and making, he can't expect the price in this bill." And his eyes reverted back from their hard gaze on the child to a little open strip of paper pinned to the sleeve of his new coat.

"Please, sir," was the quick tremulous answer, "father has never any help; and, as he made out the bill, he said it was five shillings less than he should charge any one else." There was a pleading in these last words which bespoke the value to poverty of the sum set down.

"Ay, your father always says so. He always pretends to favour me; such pretences are common in this world."

"Father pretends to nothing, sir," said Lizzy; for her love for her father was greater than her fear of Mr. Silver. "He's very poor, I know, sir, because he has many of us to keep and feed; but as our dear old Giuseppe said the other day, London doesn't contain a kinder man."

"Mr. Silver is only joking, my dear," said the little woman, drying her tears, as she came towards the child; "you know this, Lizzy, and shouldn't mind him. And now, William," she spoke here to the occupant of the eyry, "come and sit down, and let us hear about our poor Anne, for you know how long we've wanted—"

"I want my supper, and so must our visitor; when that is over, I will leave you to hear particulars; it is enough for me to know that Anne is dead, and that grief is useless."

"But she left a child, my dear," said the little woman, appealingly, "and you will like to hear about it I am sure." And Mrs. Silver spoke thus, in the hope of concealing from the keen, regarding old man, the hard, and cold, and worldly temper of her husband.

"No, no, I'm not quite so certain as you are, Susan. It's no gift from heaven to have another person's child to feed and clothe. It is no special piece of Providence to have to turn your home into a parish workhouse."

"Mr. Silver," said the old schoolmaster, indignantly, as he rose from the chair Lizzie had placed for him, and now stood beside, "I have not come near three hundred miles to be wantonly insulted before even I have stated my business. Alice Law is neither pauper, nor infant, but a sweet girl of sixteen, as rich in beauty as in goodness. All I came to ask you for, was protection and shelter whilst she is in London studying under masters. But strangers will be easily found who will give her what her relatives refuse—ay! that they will." He was buttoning his old-fashioned outer coat and moving towards the door, when Mrs. Silver interposed, with such tearful apologies and kind words, with such an earnest protest that her dead sister's child, be what it might, should share her last sixpence, that the old man, willing to secure friends for one he loved so well, was led from his hasty and indignant purpose of immediately quitting the house.

When the schoolmaster had been induced to reseat himself, and Lizzie Wilson asked to stay to supper by Mrs. Silver, the old servant brought it in. To this Mr. Silver immediately sat down with much alacrity, and with the solemnity of a raven, for it was his rule to take prompt and lavish care of number one. With this result, however, that after the dismissal of a fair-sized lobster, and a considerable portion of salad, he warmed into a more genial humour and show of courtesy towards his guest.

"So, Mr. Wood," he said, rubbing his hands, "we've a pretty niece, have we? Well, if she come here, we'll make her useful; a Sevres jar or Dresden plate, a knick-nack in ormolu or lapis lazuli, will tempt best in pretty hands, I dare say. Ay! we missed her mother a long while on this account."

"On many, many others, William," said Mrs. Silver, as the tears gathered to her eyes, "but, please God, we'll make amends." And Mrs. Silver, who had not eaten a morsel of supper herself, heaped a fresh supply of tart on Lizzie's plate, for good news such as we have long desired makes the heart prodigal, and this much to the wonder of the poor child, who hitherto had had little to induce her to make such visits, saving her untaught delight in the beautiful things which crowded the Silvers' shop and rooms, and the power it gave her of describing them afterwards to poor Guiseppe, the Italian modeller.

"As I have done supper," replied the schoolmaster, "and my story is a very brief one, I will tell it; you will then know why and for what I have intruded on you. Twenty years ago——"

"Twenty this very last Easter," interrupted Mrs. Silver, breathlessly listening, though thus accurate to date.

"Twenty years ago," continued Ralph Wood, "a Yorkshire lady, named Fountains, advertised whilst in London for a young woman in the capacity of attendant and companion. Your sister, Mrs. Silver, was among the applicants; and Mrs. Fountains was so struck by her appearance, and considered her desire to escape from a hateful marriage with a man old enough to be her father, so laudable——"

"Ay!" chuckled Silver, in a vexed tone, "but what was age to sixty thousand pounds!"

"That she at once engaged her; for she found from the testimony of a gentleman who was a constant customer of yours and Van Cratz, that what Anne had stated as the cause of her desire for leaving home, and for the concealment of her real name, was strictly true."

"Who could that customer be!" exclaimed both the curiosity dealer and his wife in a breath. But the schoolmaster was too earnest in the relation of his story to be interrupted.

"Within a few hours after her engagement, Anne accompanied Mrs. Fountains back to her country seat in the village where I live, and from that hour never quitted the good and kind lady, who kept her secret well, and treated her with much consideration. Quietly as she lived in the old solitary hall with Mrs. Fountains, Anne, or Miss Gray, as she was called, was seen by those going on business up and down, and oftentimes at church, and soon had offers of marriage made to her by several respectable persons living in our neighbourhood, but she refused them all. By-and-by, however, Robert Law, a very distant relative of Mrs. Fountains, and an officer in the preventive service, came to the hall to see his relative, and there was introduced to and fell in love with Anne. He made her an offer, and after courting two years they were married with Mrs. Fountains full consent; Robert, whenever absent from duty, living at the hall with his wife, as had been previously arranged. And a happy life they had of it, those young folks, for Mrs Fountains' own two sons being absent abroad, she had plenty of time to think of and treat them like her own children. But Robert Law," continued the schoolmaster, much moved at this point of his story, "was as worthy a human creature as ever lived; rough and seaman-like, for he had been a sailor in his laddish days, but with a heart as good, and generous, and brave as could be. Well, Mrs. Silver, Alice their first child was born, much to the joy of all, especially Mrs. Fountains, after whom she was named; and so things in the bright old place went on smoothly enough till Alice was about six years old, when death suddenly smote the kindest in the household—your poor sister, Mrs. Silver, died in giving birth to her second child, a stillborn infant. Nothing worse could have happened for the good old lady or Robert Law, but Robert was the one most smitten by the blow—he took Anne's death to heart as I never saw a man take a thing to heart before or since. Well, Alice still lived on with Mrs. Fountains till her death, two years after that of Anne, and then her father took her home, to a

small cottage he had bought on a desolate but beautiful part of the coast, about three miles across the moorland from the dale in which our village lies; and there she lived with him, his idol and constant companion, till his unhappy loss a year and a half ago."

"Loss!" asked Mrs. Silver and the old maid-servant in a breath, for old Nancy, stepping in to clear away supper, had lingered behind her mistress' chair, "What, is the poor dear child an orphan?" "Oh, Lord!" continued Mrs. Silver, with a pathos which at once declared the depth of her earnest sympathy, "deliver us from worldly thoughts and stoney hearts from this time evermore."

"We need all pray so, ma'am," continued Ralph, "for whether of the country or the town, we are all more selfish doers and thinkers than we ought to be. But I must go on about poor Robert—yes! he was lost one night last January twelvemonth, in an attempt to save the crew of a Dantzic vessel laden with timber, which was wrecked off our coast within a mile of where he lived. The vessel struck in the night, and, aroused by the distress gun, Law left his bed, and with the assistance of his farm servants and some neighbouring cottagers, hurried down to the beach in the winter's storm and darkness to see what could be done. But though the surf broke too wildly on the shore for any boat to live, he fastened a rope to his waist, and fighting his way through the breakers, swam and reached the wreck just as she settled down, and all her crew perished. He seems, however, to have caught one child by the waist as it was sinking, and strove to bear it to the shore, but exhausted by the mad fury of the waves, and the added weight of the child, he was seen—aye—and with keen anguish too, for not a heart there but loved him—to sink just as he reached again the edge of the breakers—and though pulled on shore immediately, both he and the child were dead, and all attempts at restoration in vain—."

SCENES IN "SAXON SWITZERLAND."



ROAD LEADING TO THE BASTION, BETWEEN WELHEN AND RATHEN.

In 1845, I was in Dresden, in bed, one fine morning at the hour of five o'clock. I was already awake, it was impossible to sleep; for the whole house was in motion. What is the meaning of the noise? I ring the bell, "English and German families, monsieur, who are setting out on an excursion into Saxon Switzerland."

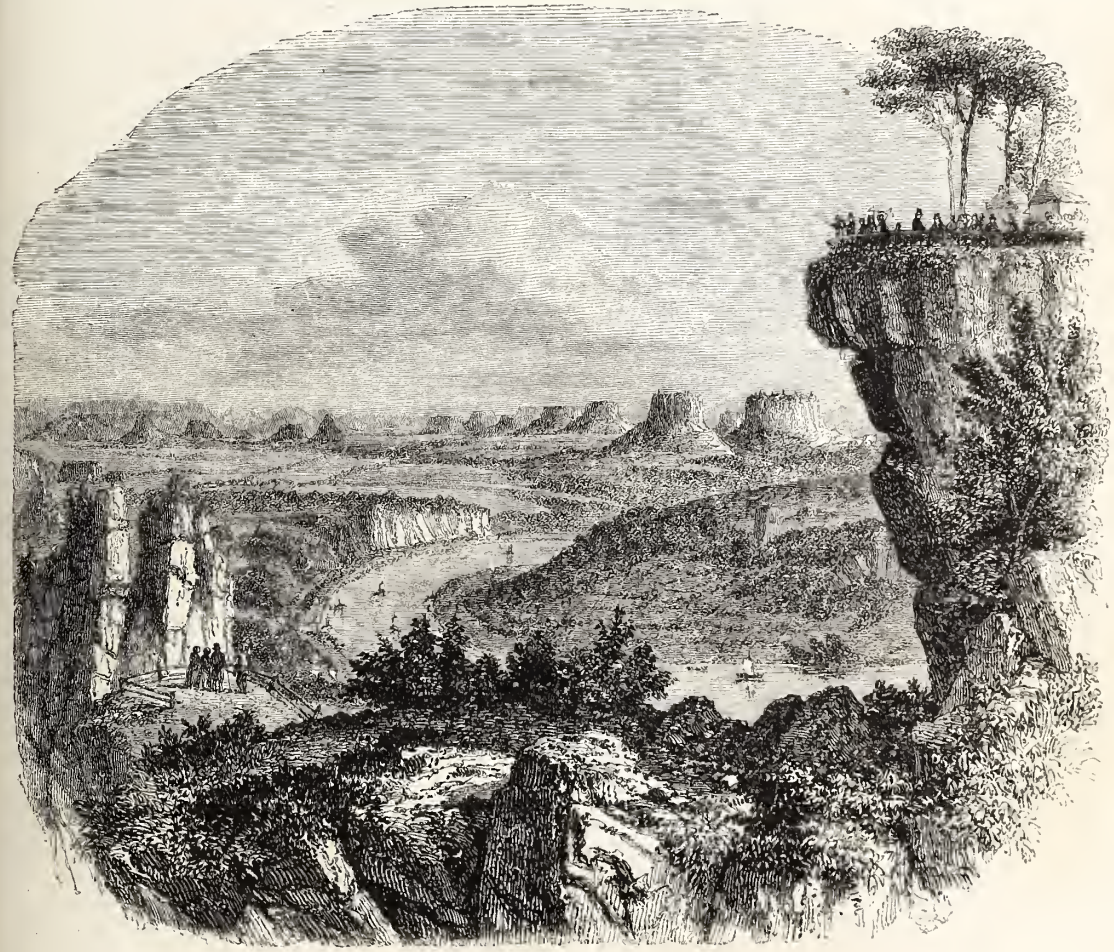
"What time does the journey occupy?"

"Five days, if you wish to see the whole country; for visiting remarkable scenes, two days will be enough."

I jump up—don't wait for hot water, hurry on my clothes, traverse the *Place du Vieux Marché*, casting one longing, lingering look towards the windows of the Gallery—(Ah, Virgin of Raphael, two whole days shall I be without seeing you!) The steamboat

is puffing away near the bridge; the bell has rung for the last time, they are already hauling away the gangway, I jump on board, and the time is up. Away we dash; the Germans begin to call for coffee; the sky is cloudy, the wind fresh, the Elbe rapid. We are already beyond the town; on the hills to the right and left, are vines, country-houses, and hotels. A German came towards me and addressed me in English; he showed me to the left a little house half hidden in the foliage of the surrounding trees. "Schiller," said he, "lived there. It was there that he wrote 'Joan of Arc.' On stormy days he took a boat, and sailed about alone on the agitated river; the thunder and the waves inspired him."

I confess I don't much enjoy conversation when travelling, especially amidst picturesque scenery; the novelty of the surrounding objects occupies the whole of my attention. There is a pleasure in guessing; what one learns is often not half so valuable as what one imagines, and agreeable illusions are too often dispelled by explanations. But my companion on this occasion had an open and benevolent expression of countenance, that made his communications pleasant to listen to,—they were so plainly dictated by kindness alone. On one occasion he broke down in his English, and turned to his daughter for assistance, who, he said, spoke better English than himself. The young girl looked up from her book, disclosing a very handsome but thoroughly Saxon face, fair hair and blue eyes, and seeing the stranger, blushed, turned the expression into very neat English, and went on with her reading. The old gentleman then continued to point the different places of interest as we passed—castles, villages, and mountains. Here we are in front of the Castle of Pilnitz, the summer residence of the King of Hanover. Its appearance is very singular,—the body of the building heavy and massive, surmounted by light pagoda-shaped towers of Chinese architecture. I suppose it was imagined it would give an air of lightness to the whole. "The apartments of the queen," said my obliging companion, "look out on the river, and are called the Water Palace (*Wasser Palast*); those of the king are on the other side, and are called the Mountain Palace (*Berg Palast*). If I understand rightly, there is nothing very remarkable in the interior of the castle, except a vast dining hall, the ceiling of which is supported by pillars and decorated with frescoes. It was at Pilnitz that the Count d'Artois and Calonne found refuge in 1791. It is related that in 1812, Napoleon, at the height of his glory, when surrounded by kings and princes whom his victories had humbled, exclaimed on entering Pilnitz, "It is here that I was born." He spoke of that short imperial life, which lasted only two or three years. We were now on the frontier of Saxon Switzerland, and the landscape began to assume a different character. The merchant told me that this beautiful part of Saxony was not more than ten leagues in length or breadth, and that it was not known who had given it its name; but that about the year 1795, there had appeared at Leipsic a "Picturesque and Romantic Journey in Saxon Switzerland," illustrated with nine very fine engravings. The banks of the Elbe now become rapidly metamorphosized. The hills ascend more abruptly. To our right was the town of Pirna, and beside it, on a height, the Castle of Sonnenberg, converted in 1781 into an asylum for lunatics. It is said to be the finest establishment of the kind in Europe. Shooting, billiards, gymnastics, a rich library, and various musical instruments are amongst the means provided to make the unhappy inmates forget their misfortunes. At the foot of the hills a railway here runs along, following all the windings of the river. The isolated hills, round and truncated like fortresses, for which Swiss Saxony is remarkable, now begin to appear. On our left, lofty, craggy rocks overhang the stream, and cast a shadow on us as we dash past. "Here is our first stage," said the merchant, turning



THE BASTION.

to me; "you must get out at one of these villages, Welhen or Rathen; choose which." Nobody got out at Welhen, so I went ashore at Rathen with a party of travellers on the same errand as myself, after bidding adieu to my kind-hearted cicerone and his fair daughter, who were going on to Koenigstein. We breakfasted at a little inn, the landlord of which, both in dress and manners, had all the air of an accomplished gentleman. He persuaded me I could not go on without a guide, and introduced to my notice for that purpose an old man, with a copper-plate under his coat, whom I was fool enough to hire. We began the ascent along a gentle incline, between lofty perpendicular rocks. My guide, however, turned out to be asthmatic, and was obliged to stop every minute to take breath, and shouted loud enough to deafen me in the attempt to make me understand his patois. My questions were all addressed to him in vain.

He pointed with his stick, and laughed complacently as he did so, to certain strange forms of rocks, to which the peasantry have given ridiculous names, such as *Kaiser-naze*, the emperor's nose, the *Locomotive*, &c. This was all he appeared to know, or at least all that I could learn, and I began to look out for an opportunity to get rid of him. When we got a little higher, the view was magnificent. It seemed like a great number of immense citadels in the midst of ravines, rocks, and plains—desert or cultivated,—and the Elbe winding through them all like a huge serpent. The rocks across which I was passing often resembled towers and battlements, and I noticed the remains of a fortress which, as I have since learned, were for a long time the habitation of the burgraves of Dohna, the terror of the country—real brigands who lived only by rapine. The first rock on which I stopped is very well known to travellers, and is called the Couch, or Sofa. It is a little bench cut by nature in the rock, from which the panorama is magnificent. My guide pointed out to me an inaccessible cave, which they call the *Monk's Grotto*. I hastened to reach the highest point, called the *Bastion*, on which the other travellers were already assembled, and on arriving there I presented my companion with a gratuity, and to his great astonishment waved him away. One party of tourists were at breakfast in a pretty inn, which seemed suspended in air at a little distance; others were standing on the platform, leaning over the railing which runs around the edge, and enjoying the magnificent prospect, whilst a band of musicians close by played the overture of the Freitschutz. I sat down in a corner, where I had a good view of the scenery, and fell into a reverie.

The Bastion is almost in the midst of Saxon Switzerland, and from the summit the view embraces all the sinuosities in the course of the Elbe, the roads, the villages, the towns, the castles, the fortresses, the high round mountains, isolated and truncated, which dot the landscape, the deep chasms, the ravines, and all other inequalities of the district, which seems to have been at one time the scene of an inundation, which wrought great alterations in the configuration of the surface of the soil. I sat for a long while gazing, until I at last began to experience that pleasing transport, which more than repays the traveller for his fatigues, and is at once the object, and the recompense of his labours. But I soon awoke from it to find that I had not yet escaped from my guide. I heard him puffing and blowing behind me like a railway engine. I looked around; he was approaching evidently with the intention of addressing me, and once more laying hold of me as his prey. I was seized on at the moment with positive dread of him, and sooner than fall into his hands, I gave a last look upon the glorious scene upon which I had for the last half hour been gazing, and sauntered along in a careless way, as if I was not aware of the near approach of my enemy, until I reached the edge of the wood, beside which stands the Bastion hotel. As soon as I thought myself concealed by the trees, I took to my heels, and ran down the slope full speed, and did not stop for a quarter of an hour or more. I then listened, but all was silent. I found myself alone in the narrow passage of the Ottowalder Grund, between two immense walls of rock, covered with trees and moss,—here leaning over as if about to fall and crush me, there inclining back,—in some places almost meeting from both sides at the bottom, in others at the top. Not a sound was to be heard, save from time to time the heavy fall of a drop of water, or the rustle made by a bird in the foliage.

It was a fine day in summer, the hour was noon, and yet I was surrounded by deep gloom, almost darkness. A glimpse of blue sky might occasionally be caught through the trees overhead, and the sun now and then threw in a ray obliquely from on high. How shall I express that strange feeling, which solitude in such a place, and in a strange country always produces? In descending farther from the surface of the earth, we feel as if at the same time we were reaching the recesses of our own souls, and to be as remote from the usual feelings, as we are from the ordinary occupations of life. One hour in these grand solitudes, amongst these woods and rocks, inspired me with more serious thoughts than years in a great city. You shall hear more of me again.

THE GRAND ORGAN AT ST. DENIS.

In reference to our description of the Grand Organ at St. Denis, recently given in the *Illustrated Exhibitor*, we have been favoured with some additional information by a correspondent. "It was built," he says, "by Monsieur Cavaillé-Col (the same artist who built the magnificent organ of the Madeleine at Paris, the tone of which I never heard, I think, equalled elsewhere, and which has a most extraordinary *vox-humana* stop). The contract price was 200,000 francs (£8,000); but I was informed that it actually cost more. It contains 70 real stops, 4,600 pipes, and three rows of keys (manuals 54 notes each); 2 octaves of pedals, and 9 *pedales de combinaison* (composition pedals), one of which makes octaves *below* of all the notes touched —one at least of the diapasons has 4 *pipes to each note*, and there is a *furniture* of 7 ranks. There are 5 pairs of bellows. The effect of hail, when a storm is imitated, is made by stones and sand, or something of that nature, enclosed in a wooden oblong case, which turns on a pivot.

"The last organ, built by Monsieur Cavaillé-Col, was that for the Church of *S. Vincent de Paul* at Paris, which was opened last February. It contains 46 stops, and 2,669 pipes, 3 rows of keys, 2 octaves of pedals, and 12 *pedales de combinaison;* amongst the stops are *viol-de gamba*, *hautbois*, *cor-anglais*, *basson*, *flûte harmonique*, *clarionette*, *trompette harmonique*, *voix humaine*, &c. It was performed upon at the opening by Monsieur *Lefébure-Ively*, the admirable organist of the Madeleine.

"Two organs I have heard of, which were *planned* for 6 rows, I think, but never completed; *i. e.* one for the Music Hall at Glasgow, and another at Vienna. The Birmingham Town-hall organ has 4 indeed (the 4th row being for the purpose of playing any of the *solo* stops in combination, without interfering with the other keys); but that, I believe, is the only one of the kind in England."

SCIENTIFIC RESEARCH.

Preservation of Animal Substances by the Sulphate of Zinc.—The obligations of the natural sciences to the discovery of alcohol by Villeneuve are duly appreciated by all scientific men; and all poor students, prevented by the dearness of this article from preserving animal substances for scientific instruction, know how desirable is the discovery of a cheaper and equally efficacious preservative. M. Falcony has made several experiments with the sulphate of zinc since 1843. He is convinced that the sulphate of zinc dissolved in different degrees of strength possesses many more advantages than any of the other substances tried by different experimenters. Whole bodies into which he has injected by an artery four or five quarts of a solution of sulphate of zinc have been perfectly preserved. They have kept their flexibility for more than forty days. The process of dyeing afterwards has not altered their natural colours, and has diminished the bulk of the parts only which are not fleshy and which are empty.

M. Falcony has tried the preservation of entire parts by simple immersion in the solution of the sulphate of zinc. The brain, the intestines, and several pathological pieces, have been preserved in the liquid in a very satisfactory manner. Their characteristics have not been altered, and they have not undergone the contraction consequent upon the use of alcohol. Another advantage which M. Falcony has found in his preservative solution is, that it does not injure the instruments used in making the preparations.

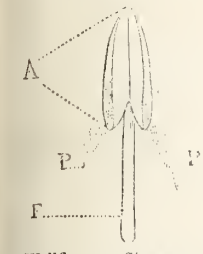
THE SCIENCE OF PLANTS.

THE FLOWER.

The corolla is called *regular* (fig. 107) when its general shape is uniform; and *irregular*, when this is not the case.

The *stamens* (fig. 106), are essential parts of the flower, each one consisting of a bag filled with a kind of powder, generally

Fig. 106.



Wallflower.—Stamen.

Fig. 107.



Nightshade.—Regular Corolla.

supported on a stalk. There are three parts of a stamen: the *filament*, F, the *anther*, A, and the *pollen*, P, P. How variously the stamens may be placed, may be seen from the following

Fig. 108.



Buttercup.—Pistil and Stamen.

Fig. 109.



Apricot.—Half of the Flower.

examples—(figs. 107 to 110). Stamens are not always of equal size (fig. 111), or placed at equal heights (fig. 112). Of varieties of form, the figs. 119 to 123 are examples.

Fig. 110.



Cornel.—Flower.

Fig. 111.



Snapdragon.—Stamen and half the Corolla.

Fig. 112.



Wallflower.—Stamen and Nectary.

Each anther is usually seen to be more or less completely divided into two parts, which are termed *anther lobes*. These are commonly united together, but sometimes they are sepa-

Fig. 119.



Flowering Rush.—Stamen.

Fig. 120.



Mallow.—Stamen.

Fig. 121.



Lignum Vitæ.—Stamen.

Fig. 122.



Ranunculus.—Stamen.

Fig. 123.



Agnus Castero. Stamen.

rated, and occasionally only a single lobe is present. Within the anthers are produced a number of minute yellow bodies, usually of a globular form, which together constitute the fine dust, known as the *pollen*, or *farina* of the flower. Each grain of pollen, when examined with the microscope, is seen to consist of a cell, which has two or more coats, and incloses a fluid.

Another essential part of the flower is the *pistil*; it consists of three parts:—the *germen*, the *style*, and the *stigma*. The pistil is almost always placed on the receptacle.

Fig. 124.



Myrtle.—Stamen.

Fig. 125.



Bellflower.—Pistil and Stamen.

Fig. 126.



Lion's-foot.—Stamen.

Fig. 127.



Nightshade—Stamen.

The germen varies, as to its form, in different plants, but is always placed below the style; its office is to contain the embryo

Fig. 128.



Barberry.—Stamen.

Fig. 129.



Orchis.—Anthers.

Fig. 130.



Pistil and Anther.

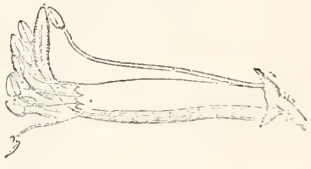
seeds. The style is placed on the germen, and is of a variety of figures and lengths, and sometimes seems wholly wanting. The

Fig. 113.



Mallow.—Stamen and Nectary.

Fig. 114.



Stamens and Pistil.

Fig. 115.



Orange Flower.

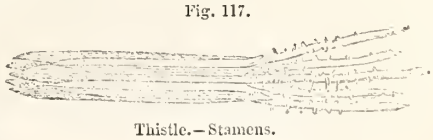
stigma also appears of various forms, but always retains the same situation, being invariably placed at the top of the style, or, if that be wanting, it is fixed on the germen (figs. 132 to 135).

Fig. 116.



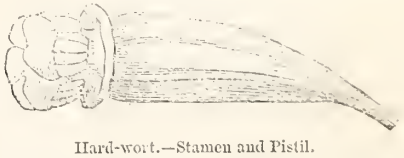
Spanish Nut.—Flower.

Fig. 117.



Thistle.—Stamens.

Fig. 118.



Hard-wort.—Stamen and Pistil.

The *ovarium*, or seed-vessel occupies the centre of the flower, being sometimes situated above, and sometimes apparently below the point at which the leafy parts of the flower arise from the

axis which bears them. In the *ovarium* are formed the ovules, or young seeds, sometimes it consists of several evident divisions;

Fig. 131.



Fraxinilla.—Pistil and Calyx.

Fig. 132.



Columbine.—Pistil.

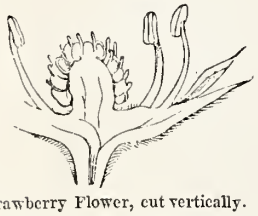
Fig. 133.



Broom.—Pistil.

in other instances they are united together more or less closely, and all mark of a division may even disappear.

Fig. 134.



Strawberry Flower, cut vertically.

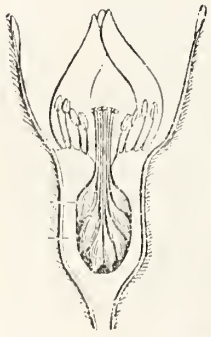
Fig. 135.



Pheasant's Eye.—Pistil.

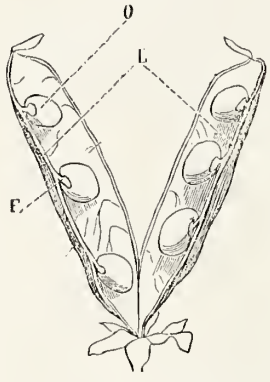
The several parts of an ovarium are termed *carpels*: each carpel is surmounted by a sort of pillar, termed the *style*, which

Fig. 136.



Rose.—Flower cut vertically.

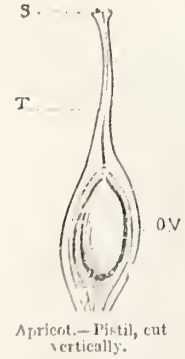
Fig. 137.



Pea.—Seed-pod opened.

usually expands at the summit into a fleshy surface, called the *stigma*. When the carpels adhere closely together, their styles

Fig 138.



Apricot.—Pistil, cut vertically.

Fig 139.



Carnation.—Pistil.

Fig 140.



Lily.—Pistil.

Fig. 141.

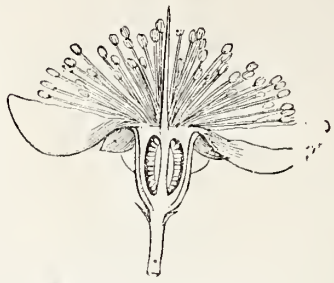


Primrose.—Pistil.

also frequently unite, so as to form a single pillar; which sometimes, however, divides again into several branches at the top.

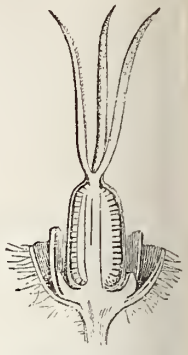
The ovarium, with its style and stigma, is then called the pistil and sometimes each separate carpel, with its own style and stigma, receives the same appellation.

Fig. 142.



Myrtle.—Flower cut vertically.

Fig. 143.



Lychnis.—Vertical section of Pistil.

An orange presents an excellent illustration of an ovarium consisting of many carpels, appearing externally single, but each really separate from the rest. The juicy part of the orange is in

Fig. 144.



Saxifrage.—Pistil and Calyx, cut vertically.

Fig. 145.



Mignionette.—Ovary, transversly cut.

Fig. 146.



Ovary—Transversely cut.

Fig. 147.



Bellflower.—Ovary, transversly cut.

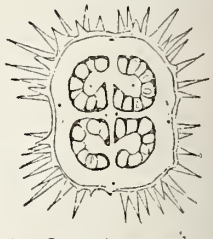
fact, the ovarium, composed of a number of carpels adhering together, but which may be torn apart. The position of the pips or seeds, especially when they are few in number, show how

Fig. 148.



Flax.—Ovary, transversly cut.

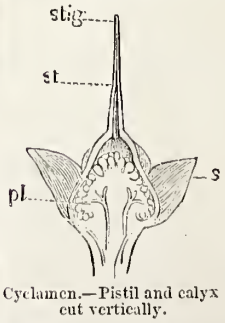
Fig. 149.



Date.—Ovary, transversely cut.

they are usually situated within the carpels. Sometimes, however, they are attached to the whole length of the carpel, as is seen in the common pea, of which each pod is a separate carpel.

Fig. 150.



Cyclamen.—Pistil and calyx cut vertically.

Fig. 151.



Strawberry.—Carpel.

Fig. 152.



Lion's Foot.—Carpel.

In the roses the receptacle, instead of being arched, retires, and the carpels are found attached to the wall of a concave receptacle lining the tube of the calyx (figs. 135, 136).

The portion of the carpel, from which the ovules arise, is usually thick and fleshy, and called the *placenta* (fig. 137, L), the cord which unites the ovule O, on the grain to the placenta, is

Fig. 153.



Comfrey.—Pistil and calyx, cut transversely.

Fig. 154.



Gilliflower.—Pistil.

Fig. 155.



Melon.—Stigma.

named the *grodospedus* (figs. 136, 137, F.) Fig. 138 shows an apricot pistil, cut vertically; O V is the ovule enclosed in the carpel with the style T and the stigma S.

Fig. 156.



Dock.—Pistil

Fig. 157.



Pellitory of the Wall. —Pistil.

Fig. 158.



Shrub.—Pistil.

Fig. 159.



Pansy.—Pistil.

When the carpels are free from all adhesion, every one possesses its ovarium, its style, and its stigma, as in the following instances (figs. 139 to 141).

Fig. 160.



Iris.—Pistil.

Fig. 161.



Lychnis.—Pistil.

Fig. 162.



Arum.—Pistil.

Fig. 163



Bellflower.—Pistil.

Sometimes the tube of the calyx is united more or less completely with the myrtle (fig. 142). It is said to be free when

Fig. 164.



Radish.—Pistil and nectary.

here is no such adhesion (fig. 143); but in some instances the adherence is incomplete, as in fig. 144.

The ovarium may have a single cell, as in fig. 145; at others, it may appear as represented in figs. 146 to 149.

The central placentas are called free when they are not united to the walls of the ovarium (fig. 150). The style is *terminal*, when it stands on the top of the germen (fig. 151), *lateral*, when

Fig. 165.



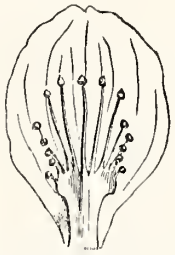
Periwinkle.—Pistil and nectary.

attached to the side (fig. 152), and *spreading*, or *curved*, &c. according to circumstances.

The stigma partakes of great diversity in form, as will be apparent on a reference to the engravings (figs. 154 to 163).

The *nectary* is that part of the flower which contains or secretes

Fig. 166.



Grass of Parnassus.—Petal and nectary.

Fig. 167.



Pansy—Stamens, with one formin the nectary.

honey. Of nectaries, the following are specimens (figs. 164 to 167).

The carpel is a transformed leaf, and the various parts of the flower are arranged in a similar way to the leaves of plants. Thus, the young leaves, in most leaf buds, may be easily observed

Fig. 168.



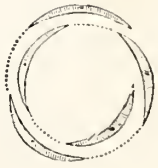
Fig. 169.



Fig. 170.



Fig. 171.



Arrangement of the parts of flowers.

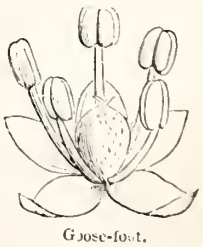
to be arranged around a common centre or axis. When the bud lengthens, the insertions of the leaves which were at first close together, are separated by the lengthening of the branch that bears them; and they then generally assume something of a spiral arrangement round it, which is often very apparent.

Fig. 172.



Diagram of a flower completely symmetrical.

Fig. 173.



Goose-foot.

In like manner, when the spiral, which may be regarded as the regular mode of arranging the parts of a flower, is converted into a whorl, or verticil, by the non-development of the intervening

part of the axis, and two or more of these whorls do not correspond, in the direction in which they issue from the stem, but are so placed that the leaves of each are above or below the intervals between the leaves of the other, the whorls are said to be *alternate* to each other. The regular flower, therefore, may be considered as made up of five such whorls, arising from nearly the same part of the axis; and they are disposed alternately with each other. Thus, the sepals of the calyx *alternate* with the bracts; the petals of the corolla alternate with the sepals; and the carpels alternate with the stamens, and are opposite to the petals. To this simple law, however, there are many exceptions (figs. 168 to 171).

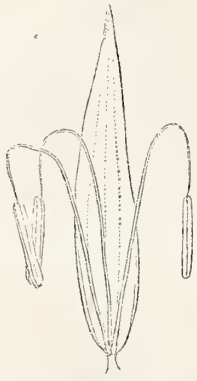
In conclusion, a few facts must be stated. A *perianth* is a calyx contiguous to the corolla, or other internal parts of the flower (fig. 173). A *naked* flower, is one destitute of a calyx (fig. 174). A *staminiferous*, or *barren* flower, is one having stamens, but without pistils (fig. 175). A *pistilliferous*, or *fertile* flower, is one having pistils, but no stamens (fig. 176). A *neutral* flower, is one destitute of both stamens and pistils (fig. 177).

Fig. 174.



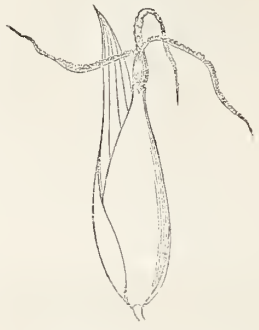
Ash.—Flower naked.

Fig. 175.



Sedge.—Flower with stamens.

Fig. 176.



Sedge.—Flower with pistil.

Fig. 177.



Neutral Flower.

DOMESTIC MANNERS IN THE SIXTEENTH CENTURY.

We have heard a great deal lately about "the good old times," though what particular period is intended by the phrase, has never yet been satisfactorily determined. The good old times are always on the retreat. Our ancestors regarded earlier ages more happy than their own; those earlier ages looked with pleasure further back; the men of older time still sighed for by-gone glories; and step by step we might follow this retreat far back in the records of history, even to that most distant period, when there went up a mist from the face of the earth, and there was not a man to till the ground.

Looking back upon the past, how many curious customs, how many exploded fallacies, how many out-worn fashions, present themselves before us. Here, in England, how differently things were managed scarce a hundred years ago, when Garrick played, and Reynolds painted, and the leonine Johnson thundered from his huge arm-chair at Mrs. Thrales! And two hundred years ago, how vastly different were all things! When men in buff coats and bandoliers, and iron coats and Spanish hats struggled in the civil war. And three hundred years ago, or rather a little less than that, when the good Queen Bess reigned over the land, and the men of genius who thronged around her, rendered her days indeed a golden age. But how different were all things then from what they are at present! No railroads, no steamboats, no aerostatic enterprise, no electric telegraph, no submarine communication between England and France, no cheap books, no newspapers, no periodicals, no schoolmaster abroad, nothing that made the state of the people any better than it had been in earlier times, although honest yeomen and worthy citizens might cast their bonnets in the air, and shout, with brazen lungs, Hurrah, for the fair Vestal, throned in the west!

It is curious and interesting to wander through an old mansion of that or of an earlier period. To look at the quaint forms which decorate every part of the building. The gable-ends, the casement windows with their lozenge panes of glass, the broad staircases up which, as we say, we might drive a coach and six; the lofty rooms, and strange old galleries, and grim portraits of knights and ladies that once in all their pride and glory walked those very galleries. Curious it is to speculate upon the various scenes which the old walls have witnessed. And in the kitchens everything is on a brobdignagian scale. The wide chimney, where the huge logs were wont to blaze and crackle, is only in dimensions a sample of the whole. One begins to think that the cookery must have been en an extensive scale; and so it was. The hall of the country squire was the usual scene of eating and hospitality. At the upper end was placed the orsille, or high table, a little elevated above the floor; and here the master of the ceremonies was wont to preside, with an authority, if not a state, which almost equalled that of the potent baron. The table was divided into upper and lower messes by a huge salt-cellar, and the rank and consequence of the visitors were marked by the situation of their seats above and below the salt-cellar; a custom which not only distinguished the relative dignity of the guests, but extended likewise to the nature of the provision; the wine frequently circulated only above the salt-cellar, and the dishes below it being of a coarser kind than those near the head of the table. The usual fare of country gentlemen, relates Harrison, was four, five, or six dishes, when they had but small resort; and accordingly we find that Justice Shallow, when he invites Falstaff to dinner, issues the following order:—"Some pigeons, Davy; a couple of short-legged hens; a joint of mutton; and any pretty little tiny kickshaws, tell William Cook." But on feast days, and particularly on festivals, the profusion and cost of the table were astonishing.

It was the custom in the houses of the country gentlemen to retire after dinner, which usually took place about eleven o'clock in the forenoon, to the garden bower, or an arbour in the orchard, where they took dessert: thus Shallow, after dinner, says to Falstaff, "Nay, you shall see mine orchard, where in an arbour we will eat a last year's pippin of my own graffing, with a dish of caraways, and so forth!" From the banquet it was common to retire to evening prayer, and thence to supper, between five and six o'clock; for in those days there were seldom more than two meals—dinner and supper.

The supper was often protracted to a late hour, and as often, too, was as substantial as the dinner. It was succeeded especially at Christmas time by gambols of various sorts; and sometimes the squire and his family would mingle in the amusements, or retiring to the tapestried parlour, would leave the hall to the more boisterous mirth of the household. Then would the blind harper, who sold his bit of mirth for a groat, be introduced, either to pro-

voke the dance, or to rouse their wonder by his minstrelsy, his matter being, for the most part, stories of old time, as the tale of Sir Topas, the reports of Bevis of Southampton, Guy of Warwick, Adam Bell, and Clym of the Clough.

The posset at bedtime closed the feasting of the day. Thus Lady Macbeth says of the surfeited grooms, "I have drugged their possets;" and Page, cheering Falstaff, exclaims, "Thou shalt eat a posset to-night at my house."

These were the common doings of our old English lords and squires. In the bright early morning they rode forth with the hawking or hunting party, and following hound and falcon, spent the early part of the day. A gay sight it was to see the gallant company in the picturesque dresses of that period riding among the deep green mystery of forest trees, and waking up the echoes far and near; a gay sight it was to watch them as they rode to where the reeds grew long and darkly by the water's brink—to watch them as the heron arose, and hawks were unleashed, and freed from hood and jessy, and upward rose in full pursuit, in circling gyrations. And when the sport was over, and the gay company came back to the substantial feasts which awaited them in their lofty halls, a gay sight it was to see them at their banquet. And when Christmas came, what high feasting and merriment went on within baronial halls, how long and curious was the bill of fare—

"Hogsheads of honey, kilderkins of mustard,
Muttons, and fatted beeves, and bacon swine,
Herons, and bitterns, peacocks, swans and bustards,
Teal, mallard, pidgeons, widgeons, and in fine,
Plum-puddings, pancakes, apple pies, and custards.
And withal, they drank good Gascon wine,
With mead, and ale, and cider, of our own,
For porter, punch, and negus, were not known.
All sorts of people there were seen together,
All sorts of characters, all sorts of dresses;
The fool with fox's tail and peacock's feather,
Pilgrims and penitents and grave burgesses;
The country people with their coats of leather,
Vintners and victuallers with cans and messes;
Grooms, archers, varlets, falconers, and yeomen,
Damsels, and waiting maids, and waiting women."

The hall very often served for kitchen, as well as dining-room. The huge chimney-pieces are still seen in old residences, not only in England, but on the Continent. Especially is this the case in those houses which were formerly monastic establishments, where the traveller, at all times, was sure of a hospitable welcome. Our engraving represents a Chimney-piece and Hall of the sixteenth century, in the hotel of le Grand-Cerf, at Grand Andelys, in the department of the Eure, France. It is a remarkably interesting specimen of the wood-carving of the period, and is in very good preservation. Flowers, and fruits, and human figures, are blended with an exquisite grace, and are delicately finished. The house formerly belonged to the archbishops of Rouen, and was afterwards a religious establishment. The large chimney of the hall, around which the servants are represented, as busily employed in culinary operations, is worthy of the regard, not only of the antiquary but of the artist. There is the greatest elegance displayed in the groupings which decorate the front of the mantel-piece. Rich scroll work is beautifully blended with flowers and fruits, and the human figure rises up fantastically from the endless variety of foliage, figures half hidden in the flowers, the whole arranged with a matchless beauty, and a power and strength which show a master's hand. The mantel-piece is supported by two columns, surmounted by wreaths of flowers, and heads of men and animals. The effect of the whole is charming. Upon the outside of the chimney, reaching almost to the ceiling, is a beautiful specimen of sculpture, somewhat resembling an organ, the fluted pillars are executed with peculiar care and the centre one supports a neatly carved representation of the Virgin and Child. The exterior of the house has undergone very numerous and important alterations since its first erection, and is a remarkable and interesting specimen of mixed architecture.

Having said thus much concerning this old-fashioned kitchen-chimney, and old English manners in the old-fashioned baronial halls, a word or two about cooks and cookery may not be out of place.

Cookery distinguishes man from the brutes. Your spotted leopard and your striped tiger, your monarch of the forest, and his jackall help—alike turn away from anything but a raw meal:—

"No meaner creatures, scan 'em all,
By fire their food prepare,
Man is the cooking animal,
And need be nothing *mair*."

Some people imagine that modern times are peculiarly the days of cooks, that men in the good old time were less careful in their culinary arrangements than we, content with simpler fare, cooked in a simpler fashion; but this is a great blunder, and very far from being the real state of the case. True, Milton describes a vegetarian entertainment in the picture of Paradise; but very soon after man left his Eden home, he learned the art of cookery; and while Esau sold his birthright for a mess of pottage, good Isaac longed for savoury meat; and still earlier, the father of the faithful entertained strange visitors right royally. In classic land, some of the Greek cooks carried their art to such perfection, that they were able to serve up a whole pig, boiled on one side, stuffed within, and roasted on the other,—perhaps the first and most ingenious display of going the whole hog on record, for all this was done without any visible mark of the knife upon it. Of these cooks it was gravely affirmed, that by their saltings, picklings, and fryings, they could make a turnip pass for any kind of fish or flesh they chose, reminding us of Sam Weller's story of the meat pies—"*the seasoning does it.*"

The Greek cook, who speaks in Athenæus, says—

"I never enter in my kitchen, I
But sit apart, and in the cool direct,
Observant of whate'er may pass within,
The scullion's toil. I guide the mighty whole—
Leave, leave that pondrous ham;
Keep up the fire, and lively play the flames
Beneath those lobster patties; patient here,
Fixed as a statue, skim, incessant skim;
Steep well this small glociscus in its sauce,
And boil that sea-dog in a cullender."

An ancient epicure, by name Philoxemus, made himself famous by habituating his palate to the touch and taste of water scalding hot, that he might feel the less impediment in swallowing the hottest soups. Apicius made a voyage to Africa, in order that he might test the truth of a report which said that the shrimps were larger and finer there than anywhere beside. The wisdom of the Greek was exerted in the kitchen, and martial Roman threw aside his spear and target—

"To make the concert play,
No useless dishes might the table crowd;
Harmonious ranged, and consonantly just,
As in a concert instruments resound,
The ordered dishes in their course might chime."

Old English cooks were famous in their way; both Stow and Hollinshed are filled with records of good eating, and of marvellous performances with swans and peacocks, and every old romance tells us of feasts most wondrously sumptuous. Ben Johnson, in the Alchemist, introduces us to Sir Epicure Mammon, who gloating in his promised wealth, revels in a glorious dream of gastronomy, says he to Puff—

"We will be brave, Puff, now we have the med'cine,
My meat shall come in Indian shells,
Dishes of agate set in gold, and studded
With emeralds, sapphires, hyacinths, and rubies.
The tongues of carps, dormice and camel's heels,
Boiled in the spirit of sol, and dissolved pearl,
Apicius' diet against the epilepsy:
And I will eat these broths with spoons of amber,
Headed with diamond and carbuncle;
My foot-boy shall eat pheasants, calver'd salmons,
Knots, godwits, lampreys; I myself will have
The heads of barbels served instead of sallads;
Oil'd mushrooms; and the swelling unctuous paps
Of a fat pregnant sow, newly cut off,
Drest with an exquisite and poignant sauce;
For which I'll say unto my cook, *There's gold,*
Go forth, and be a knight."

That our ancestors were very particular about their bastings and dredgings will be seen from the following title of a book, published in London, in 1665:—"May's Accomplished Cook. —*The rarest ways of dressing of all manner of roast meats, either flesh or fowl, by sea or land, and divers ways of dredging meats to prevent the gravy from too much evaporating.*"

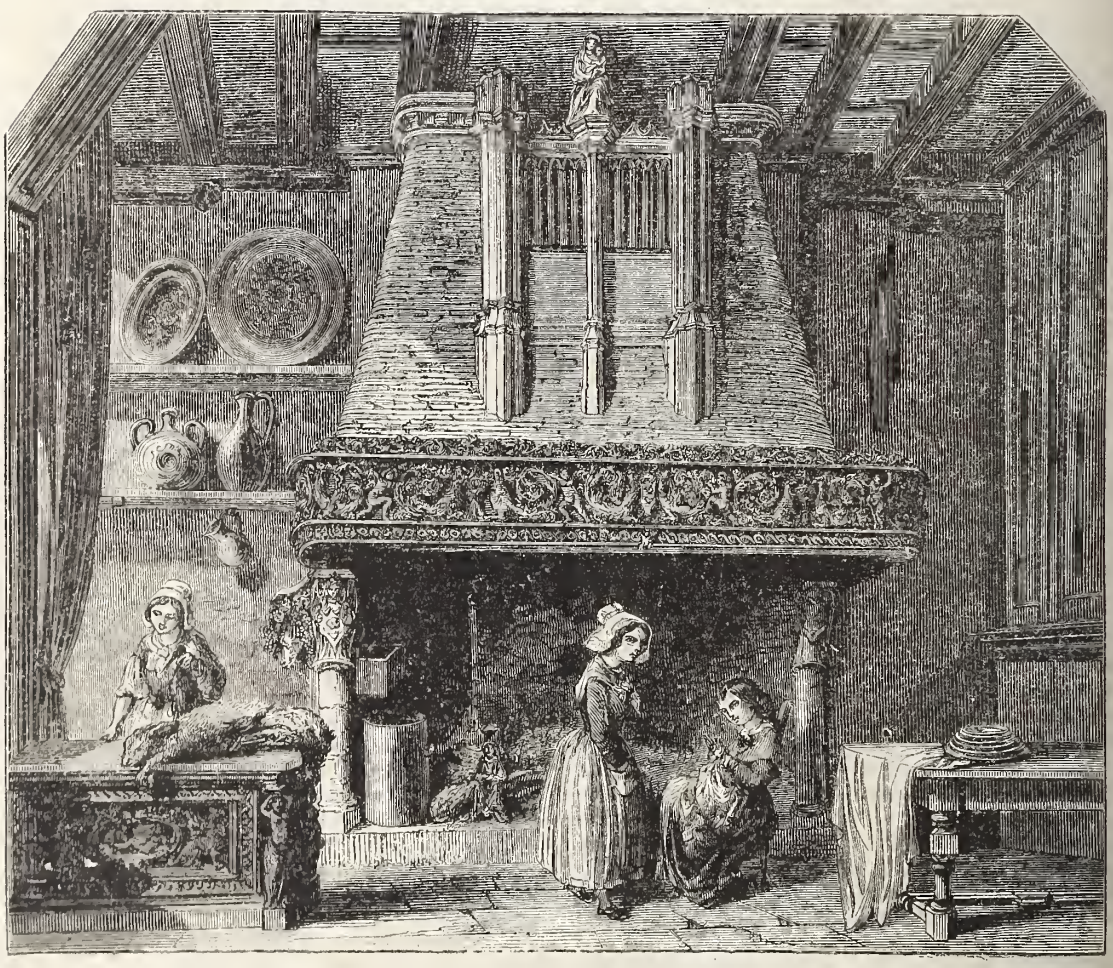
The noble sirloin is said to owe its name to king Charles II., who, dining upon a loin of beef, and being particularly pleased with it, asked the name of the joint, and said for its merit it should be knighted, and henceforth called *Sir*-loin.

"Renowned Sir loin, ofttimes decreed
The theme of English ballad,
On thee, our king hath deigned to feed,
Unknown to Frenchman's palate;
For how much doth thy taste exceed
Soup meagre, frogs, and sallad!"

in his poem on the Act of Preserving Health, says, respecting diet,—

"I could relate what table this demands
Or that complexion; what the various powers
Of various foods: but fifty years would roll,
And fifty more, before the tale were done.
Besides there often lurks some nameless, strange,
Peculiar thing, not in the skin displayed;
Which finds a poison in the food that most
The temperature affects."

Dr. Arbuthnot remarks, at page 3 of the Preface to his Essay on Aliment, that "the choice and measure of the materials of which our bodies are composed, and what we take daily by pounds, is at least of as much importance as what we take seldom, and only by grains and spoonfuls." Cookery, indeed is one of the greatest essentials of health. There is a story told of a shoemaker in



KITCHEN IN THE HOTEL DU GRAND-CERF, AT GRAND ANDELYS, FRANCE.

Nothwithstanding this, French ragouts and soups have been highly esteemed by our countrymen, who, says an old poet—

"Post to Paris go,
Merely to taste their soups, and mushrooms know."

Gay teaches us how to stew a knuckle of veal in lines that we all know very well indeed, beginning—

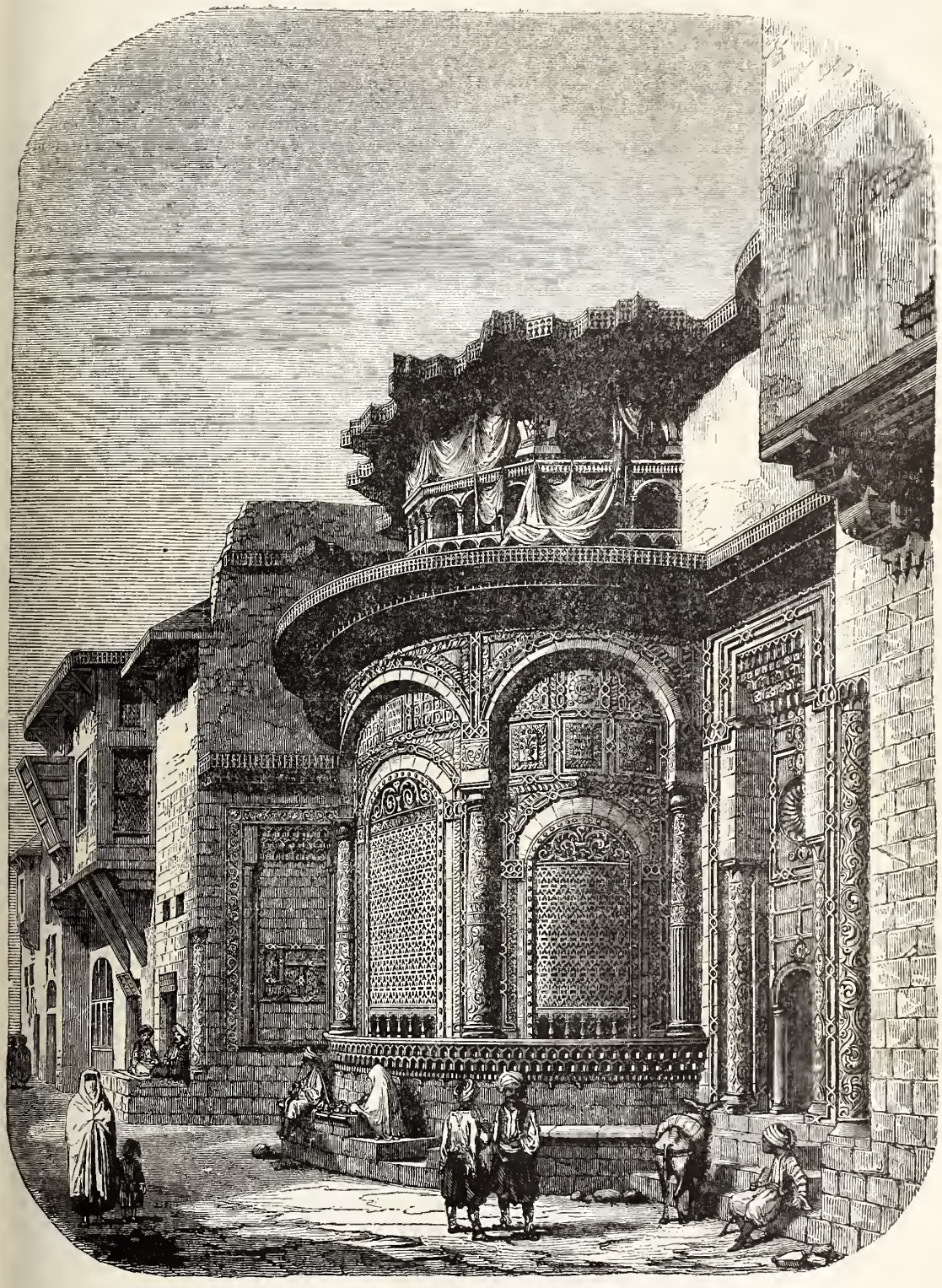
"Take a knuckle of veal,
You may buy it or steal."

And Dean Swift sings the praises of roast mutton. "If medicine," says Dr. Kitchene, "be ranked among those arts which dignify their professors, cookery must lay claim to an equal, if not a superior distinction—to prevent diseases is surely a more advantageous art to mankind than to cure them." "Physicians should be good cooks, at least in theory," says Dr. Mandeville; and Armstrong,

Scotland, whose wife had been a cook in a family, who, upon being asked by a friend how he was pleased with his spouse, replied—"Eh, man, she's a primo ane! Dash it, I believe she could mak a stew out o' *bend leather*, and a *hashie out o' insoles!*"

Every nation almost has its peculiarities in the choice of food: rejecting some, and preferring others. The Abyssinians, according to Bruce, cut a slice from a *living* ox, and esteem it one of their chief delicacies. The Tartars think horseflesh their greatest dainty; the Greenlanders regard train-oil as the finest of all sauces; cats are eaten in China. In Addison's time, the Swiss ate snails as a treat, and frogs are even now eaten in France. On the other hand, many kinds of food which we consider good and wholesome are rejected by the people of other countries; and it is asserted, that the Neapolitans once refused to eat potatoes during a famine!

PUBLIC FOUNTAINS AT CAIRO.



FOUNTAIN AT CAIRO.

Cairo there are no less than three hundred fountains fed by terns filled at the yearly inundation. When these reservoirs exhausted, water is brought from the Nile on the backs of nels. The edifices which contain the fountains are nearly all ilt by charitable bequests; and very often on the floor above pure and fresh water which refreshes the weary traveller, re is a school, in which gratuitous instruction is given to the children of the poor. The fountain *Seby-el-Bedawych*, represented in our engraving, is situated in the *Soug-el-Ezzy*, which leads by the *Soug-el-Selah* (the bazaar of arms) to the square of Roumelye, at the foot of the citadel. The inscription which it bears informs us that it was constructed by order of Sitti Bedawyeh, son of the emir Rochouan Bey, in the year of the Hegira 1173, and A.D. 1759. Sitti Bedawyeh left several inalienable legacies to provide foun-

tains, to secure their maintenance, to pay a schoolmaster, and procure new suits of clothes at the feast of Bayram for the poor children who should come to learn to read the word of God. The architecture of the edifice is remarkable for the richness and solidity which it displays, and which are seldom seen in buildings of ancient date. The columns are of marble, and the ornaments of the great arches which they sustain are painted and gilt. The gratings of the windows, supported by balustrades, are of bronze. A penthouse casts a shade over the basin, and protects those who come to draw water from the heat of the sun. The water is drawn up in bronze basins fastened by a chain, according to the usual custom.

Most of our readers are doubtless well aware, that building fountains is one of the forms in which the charity of the opulent often developes itself in the East. The scorching heat of the climate is in Egypt added to the dryness arising from the proximity of the desert, and without aids of this sort the sufferings of the poor in summer would often be very severe. Cairo is one of the most interesting and purely oriental cities to be met with in the East. In size and extent, in the number of its population, and its importance as the metropolis of Egypt, it holds the first rank, and in those peculiarities which distinguish it from European cities, it presents a field of observation which can hardly be found anywhere else.

A MIDNIGHT RIDE IN '98.

Fifty-four years have now elapsed since the Irish rebellion in 1798, and though at that time I made no inquiry into the merits of the quarrel, and knew little of the actors in it, and cared nothing either for them or their motives, I have reason to remember the hot summer of that eventful year, as if it were but yesterday. I was residing in my father's house, in Dame-street, Dublin, and was an undergraduate of Trinity College, which I had entered in '97. In the city we heard little of the rebellion and its concomitant miseries, and I seldom spent a thought upon it, except when reminded of its existence by the sight of the various corps of yeomanry, which had been formed by the lawyers and other public bodies. Prisoners were occasionally dragged in by the military, and handed over to the tender mercies of Major Sirr, in the Castle, who dealt with them as to him might seem fitting. "Poor devils!" was the only exclamation either in pity, sympathy, or antipathy, which ever escaped me or my companions on meeting with them. Politics, I remember, I considered "confounded humbug," and "uniting," as forming a connexion with any of the secret associations of the day was called, the height of folly; but a good dance at an evening party I looked upon as a very serious business, which ought to be attended to in an earnest spirit. My sisters were both older than myself, and were fully imbued with the half sentimental, half traitorous notions so ripe at the time, and watched every movement with painful anxiety, either from some vague feeling of romance, or the instinctive sympathy which most women feel for the weaker side in every quarrel. Most of the young men of their acquaintance, also older and more thoughtful than I, were intoxicated with the revolutionary doctrines imported from France, and bewailed the wrongs of Ireland, while leaning over a piano, in strains so energetic, that many a fair one wished no nobler career for the man of her choice than to lead on a brigade of Wexford men, clad in green uniform, with a green cockade, and riding to do battle against the king's troops, to the tune of "the wearing of the green." But I laughed at their notions, and lost no opportunity of heaping such ridicule as I had at command upon the "patriotic" party. Once only were my feelings fairly roused to such a pitch, that I cursed the rebels in my heart, and wished them every one hanged, drawn, and quartered, and that was on the memorable night in May, when the whole Protestant population of the city turned out in expectation of an attack from the south. I had been invited to a ball in Merrion-square, but in consequence of the alarm it was postponed *sine nocte. Hinc illæ lachrymæ.*

I had an uncle living in Wicklow, about nine miles from the town of Rathdrum, upon a small landed property, most of which he farmed himself. He was an old man, and a widower, and his family consisted of one son and two daughters, who had been at school in the neighbourhood of London for nearly three years but after their mother's death, which had occurred but recently they had remained at home. Floating rumours of the beauty and accomplishments of my fair cousins had occasionally reached me through my sisters, with whom they corresponded. I remembered nothing of them myself, as I had not seen them for six years; but every one knews, and I knew too, what a difference six years make in a girl who has already reached fourteen. From listening to conversation about them, I at last began to join in it, and my interest was increasing day by day, when an invitation to spend the summer with them came from my uncle. Enamoured as I was of the joys of a city life, I felt strongly disposed to accept of it. Not so my father, who feared to allow me to travel in the disturbed state of the country; but his glowing representations of the dangers of the way only roused my ardour, and I was already, in imagination, a victor over hosts of "base lackey peasants," whom I fancied myself leading captive to Grana Hall, and presenting to my cousins as the first fruits of my valour. My uncle assured us that his neighbourhood was still very peaceable, and, with true Orange fervour, expressed his conviction, that if any disturbances *did* arise, the loyal yeomanry of the neighbourhood would put them down in a manner that would strike terror into the hearts of all evil-minded persons, and perfectly crush and extinguish all such enemies to his Majesty as might show their "croppy" heads above the calm water of law and order, which now flowed around the district. Animated by these assurances, I redoubled my solicitations to my father for permission to set out; but, when a letter from Lily, the younger of the two Misses Gilbert, expressed the warm desire which herself and her sister felt to see me, my importunity knew no bounds. I was not to be denied any longer. "Well, Charles," said my father, after a long controversy one evening, "go, if you will; but if you are shot or hanged, don't blame me. We had better, however, give you a good a chance as possible, and as my friend Captain Hudson is going down to the town of Wicklow, with a troop of dragoons, on Wednesday, I will drop him a note, and ask him to take you under his escort thus far."

Nothing could have pleased me better. The following day was spent in practising the broadsword exercise in a hay-loft over the stables; I had no need for practice in pistol firing; I could already snuff a candle at twelve paces. The night before my departure, I was charging, in dreams, in the ranks of the dragoons in a hearty fight, scattering the rebel forces

—"Like thin clouds before a Biscay gale;"

and was highly complimented by Captain Hudson.

The eventful morning came. My portmanteau was sent over early, and placed on the military baggage-cart. At breakfast I was too excited to eat much, and my attention was, at all events, distracted by the innumerable messages which my sisters charged me to deliver, and one-third of which I never did deliver, and cautions from my father as to how I was to demean myself on the way.

At last I started! I was mounted on a "bit of blood" from my father's stables, a little bay mare, which we called "Tiny Lyanna," an Irish word meaning *pet*, or *darling*, and in truth I loved her as my life; and to this day when I see a horse in the street at all resembling her, my heart leaps at the recollection of those long-gone days, when she carried me merrily over hill and valley—

"Never stopping at a wall, nor looking for a gap!"

She was small—in fact, rather below the middle size, long in the body, and rather hollow in the back, with short symmetrical limbs, broad, but compact, and by no means clumsy hoofs, and possessed great width of chest. But it was in her head that I delighted; it was the perfection of symmetry, and was surmounted by small, delicate, silky ears, that were ever in motion. Her two large dark eyes beamed with almost human gentleness and docility. She was at this time about six years old. I am thus particular in describing, because, as will be seen presently, she plays a prominent and important part in my tale. No man ever loved dumb brute as I loved her, and her memory, childish as it may seem, is so mixed up with the reminiscences of long-gone youth and lost friends, that I never think of her without emotion.

remember well with what pride I leaped on her back upon that bright June morning, and what sweet music to my ear was the clattering of her hoofs, as she cantered lightly into the barrack-yard.

Captain Hudson was a man of about fifty years of age, thirty of which he had spent in the field in every part of the world. His iron-gray hair and moustache, bronzed features, calm but piercing gray eye, tall, erect, and sinewy frame, and a deep scar on his cheek, made him in appearance the beau-ideal of a veteran soldier of fortune. He had commenced his military career in the East Indies, and the only sparks of enthusiasm or deep feeling I ever noticed in his conversation, although he was a constant visitor at my father's house, was when he recounted the exploits of Clive, that marvellous man whose wondrous genius and daring made a handful of European soldiers more than a match for countless hosts of the fiercest chivalry of the East. From India he had passed to America, and was there engaged during the whole of the war of independence, often wounded, twice made prisoner, and suffering at times incredible hardships from cold, hunger, and fatigue, but enduring all with a sort of phlegmatic indifference, as if the worst misfortune that could befal him was incidental to his profession, and consequently not to be complained of. He had received a collegiate education, and had been a fellow-student of my father's, and still retained a strong love for the Greek and Roman classics, the only tie that bound him to his youth; for all his relatives were dead many a year before his return to Europe. He had been very successful while at the university, and still devoted all his leisure hours to study.

As we rode along he engaged me in a conversation upon my collegiate pursuits, and laughed heartily when any of the questions upon knotty points of classic lore, which were "posers" in his day, puzzled me. This, and occasional gossip about remarkable places on the road, made the time pass pleasantly. He was evidently amused by my *naïveté* and confidence, and I remember very well envying his calm self-possessed manner, at times apparently half *ennuyé*, if I might judge from his yawning heavily and stretching himself in the saddle, presenting such a contrast to my own state of red-hot excitement, every moment looking out for an ambuscade or a "forest of pikes." But there is a wide difference in troubled times between the feelings of an old campaigner and those of a raw student. Captain Hudson was marching in the jog-trot routine of duty, to look after some mutinous peasants; I was entering upon a journey full of glory and adventure.

On arriving in Rathdrum we stopped for the night. The captain and I put up at the hotel, and the dragoons were billeted in various houses through the town. On the following morning he resumed his march to Wicklow, where he was to stay for a few days, and if all remained quiet he was to proceed to Hacketstown, a small town on the confines of the counties of Wicklow and Carlow, there to await further orders. Grana Hall was but ten miles distant, in another direction, however, across the hills; so there we separated. He advised me not to set out until the following day, when a corps of yeomanry would be marching part of the way, as the news had arrived a few days previously that a strong body of the rebels, under the command of Holt, had passed Wicklow Gap, and were dispersed in small parties in the vicinity. I promised to abide by his instructions, but after an hour's wandering through the little town, then no better than a hamlet, I felt so lonely and dull, and withal so impatient to reach my journey's end, that I ordered my horse, and despite my landlord's warnings and entreaties, set out alone, leaving directions to have my portmanteau sent on with the yeomanry. This was the commencement of my misfortunes.

For six miles I rode in safety across wild hills and romantic pass, the people on the wayside "clamping" their turf, and building their potatoes, and the children sporting in the fields, or lounging at the cabin doors in the sun, the pictures of happiness and contentment. I began to think the rebellion was a sham, and all the stories I had heard about it were lies; and that in short there was *no* rebellion. About mid-day I arrived at the village of Aughrim, in the midst of a barren district, surrounded by grim hills, of savage aspect, covered thickly with grey rocks, that looked stern and forbidding, as the hot sun gleamed fiercely upon them. Here I fed the Lyanna, and had a tumbler of whisky-punch, an Irishman's beverage at all times, and in all seasons. In summer he drinks it, "to keep out the hate," and in winter to "dhrive out the could." Thus fortified, we again proceeded. A crowd of the villagers assembled to see me start, observing me apparently with great curiosity, and I noticed that the women shook their heads, and looked at me with a pitying expression of countenance; but nothing was said.

My road now lay along the banks of a mountain stream, amidst the same wild uninteresting scenery, but after about two miles it turned abruptly at right angles into a wide and rather romantic glen. The hills on each side were well wooded, or covered with heather, and rose from the river's brink almost perpendicularly. The water boiled fiercely along, amongst the huge boulder stones which from time to time had rolled down from the mountain side, and the willows along the bank leaned over, waving in the evening breeze, like a lover drinking in the music of his mistress' voice. The road was cut in the side of the hill, and was full of windings, caused by the irregularities of the ground. The long arms of the mountain ash threw their shade across it, save where, here and there, the sun flung in a fostering ray upon green banks covered with bluebells and daisies. He was already sinking in the west, and his light, as it fell athwart the hill side shed a golden hue on the tree tops beyond the stream, while the clear rich notes of the blackbirds were gently wafted across through the balmy air. There was no extended prospect, I could at no point see more than ten yards in advance; on my right the hill rose perpendicularly; on my left was the river, more wood, and another steep ascent. It was exactly the time, the clime, and the spot for lovers to whisper their vows, or children to sport and gambol.

A sudden and rather steep incline brought the road almost on a level with the river, and at the bottom, the latter was spanned by a small rustic stone bridge, across which a sort of lane led up into the wood on the other side. Lounging in various attitudes at the corner, were five or six men, some smoking, but all armed, as I could see the steel gleaming in the sun, while still at some distance. At the first moment of surprise, I felt considerably alarmed, and, "I am free to confess," rather disposed to turn and fly. But further reflection convinced me that my safest course was to advance boldly, as if unconscious of danger, for if the objects of my fear were friends, flight would make me ridiculous; if enemies, it would be useless, as one well-aimed ball would cut short my career long before I could reach the turn of the road. I rode on; a short thickset man, with thin pale face, but rather intelligent features, and a black beard of at least a week's growth, advanced, armed with a musket and bayonet, and planted himself in the centre of the road straight in my way, looking at me with the calm, imperturbable air of one who had a duty to perform, and meant to perform it, thought it was a matter of no personal interest in the world to him. This was encouraging: these are a yeomanry picquet, thought I, stationed here as a measure of precaution to examine all passers by; but it is curious that they are not all in uniform; ah, perhaps it's not necessary unless at head quarters. It took but a second to console myself with reflections like these. I was roused by a peremptory order to stop. I pulled up; the party on the bridge stared at me in silence, while their companion seized the horse by the bridle, and said in a tone as phlegmatic as his manner—

"Where are ye from, an' where are ye goin' to?"

"From Rathdrum last."

"Ye're an Orangeman!"

"No, I'm not; I know nothing and care nothing about orange or green."

"Well, thin, it ill becomes a cunyuch that's nayther wan thing nor t'other to be ridin' so nate a baste, when honester min's thrampin' on foot. An' if ye're not Orange yerself, ye belong to the breed anyhow, for how the divil else would ye get into sich a nist o' Tory hunthers as Ra'dhrum? Get down, I tell ye;" and suiting the action to the word, he pulled my left foot from the stirrup, and with a smart push sent me sprawling on the road at the other side. I rose, covered with dust and boiling with rage. But what happened afterwards I must reserve for another chapter.

EGRA IN BOHEMIA.

The country in the neighbourhood of Egra is distinguished from the surrounding districts by peculiar traits. The town is situated in a central position between Saxony, Bavaria, and Bohemia, the routes leading to which all meet in it, and it also lies exactly in the great road leading from Germany to Bohemia. It is to this peculiarity of position that this little canton owes the growth of its peculiar institutions. The region is composed of a granite basin, from four to five leagues in diameter, and elevated at least 1,800 feet above the level of the sea, and is surrounded by little hills, which, however, though low in appearance, are in reality high. These are the extremity of the chain of the Fichtelgebirge. Thus encompassed by sheltering masses, the basin of Egra enjoys a very temperate climate. The river Egra, which rises at the foot of the Schneeberg, flows through it, and makes its exit through narrow gorges; but it is watered by many lakes and small streams besides. The most remarkable are those which spring from the rock, along the course of a small stream, about a league to the north of Egra. They are cold, but are strongly charged with gas, and contain a large proportion of carbonate and sulphate of soda. They are used in the treatment of a great number of diseases, and have been for a long time celebrated under the name of the "waters of Egra." Recently a regular establishment has been raised, within a short distance of the springs, which has led to the formation of a village of hotels, for the accommodation of the bathers, known as Franzenbad; and the waters have now taken that name also. The entire valley is more or less impregnated with salt, in some places to such a degree, that the hillocks appear all white, as if covered with snow. There is a small volcano at about a quarter of an hour's walk from Franzenbad, which may in truth be named the dwarf of its species; as it has all the properties and attributes necessary to constitute a volcano,—lava, scoria, rumbling and eruptions, though it is not more than sixty feet in height from the level of the plain. It is called Kammerbuhl. Thanks to the large number of peasant proprietors, who occupy the valley of Egra, it is remarkably well cultivated. It contains a large quantity of calcareous marl, deposited by a lake, which is supposed to have covered the district, and this, in the midst of a region peculiarly granitic, renders the soil very valuable for agricultural purposes. The district contains about 12 villages or hamlets, as well as a large quantity of fertile meadow and corn lands, and very fine cattle. The draught labour on the farms is performed by oxen. Forests, or rather groves, of pine scattered here and there, with their huge trunks rising to a height of nearly sixty feet before putting forth a single branch, give an air of melancholy severity to the landscape.

And this character seems to be impressed upon the population also. They have remained Catholic in the midst of Protestantism; but their Catholicism, unlike that of most countries, is of a sad and sombre cast. The cross roads are not, as in Italy, adorned with niches containing gaudy and brilliant Madonnas, or mitred saints bedecked with finery; nothing but rude wooden crosses, and ruder images of the Great Sufferer in his last agony. In nearly all the villages upon the front of the houses, a huge cross is displayed, extending its arms along the wall, between the windows of the two stories. The effect thus produced is rendered greater than it would otherwise be, from the fact that the houses generally present only a narrow gable to the street, pierced by one or two small openings. Very often the body of the edifice is surmounted by a small belfry, and this cloistral appearance is increased by the position of the buildings, which are almost always ranged along the sides of a square, and are lighted from an enclosed court yard. Except some tall but narrow gates, and some microscopic windows, no opening of any sort is ever seen in the villages; nothing but walls of woods, or wood and masonry, and thatched or timber roofs. To have seen one house is to have seen all,—on one side the stables and cow-houses, on the other the coach-houses or cart-sheds, on the third the barns, and the dwelling-house completes the square. Each is built upon a fixed tradition plan, from which no one thinks of departing.

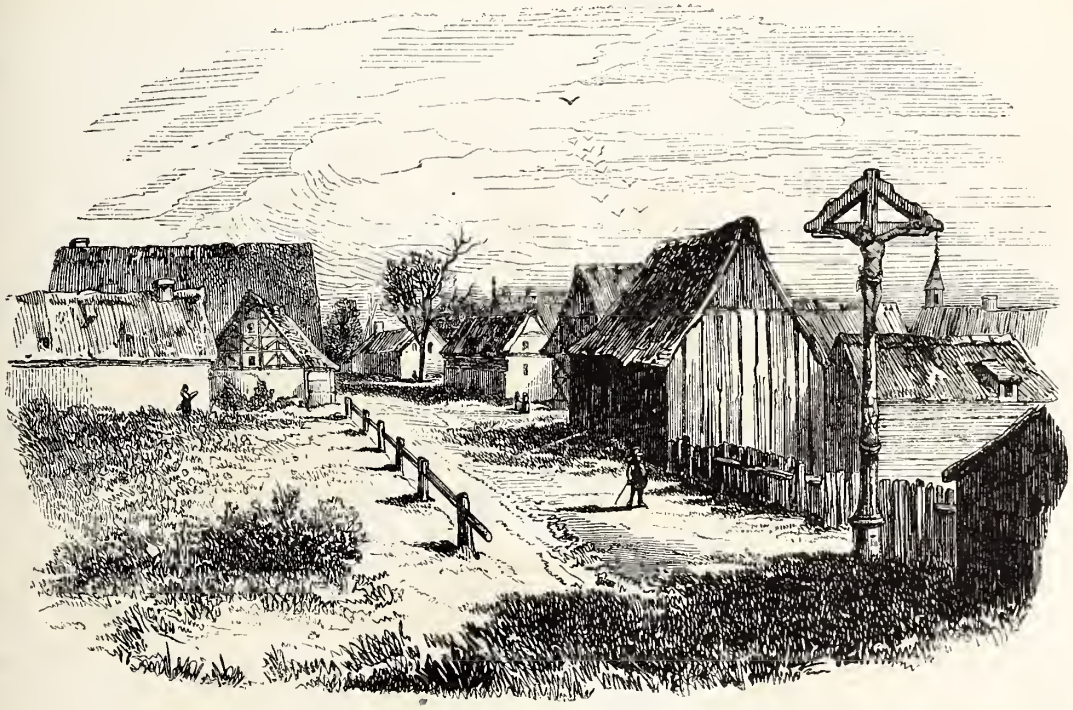


COSTUMES OF THE PEASANTRY AT EGRA.

The costume of the men is extremely plain and subdued. To see them issuing from church on Sundays one would take them rather for gentlemen than peasants. Nearly all, even in summer, are enveloped in a capacious black cloak with a broad collar, and descending as far as the knees, leaving displayed their huge top-boots. Their heads are surmounted by a little round hat with a broad leaf adorned with a handsome rosette of black ribbon. The old men are fond of a sort of surtout, or frockcoat, having three folds in the back from the shoulders down. Beneath the cloak they wear a black vest, very short, with wide knee breeches of the same colour. This costume, notwithstanding its sombre aspect

is not altogether devoid of grace and beauty, but we cannot say as much of the dress of the women. The distinctive trait of the latter is a huge, coarse cotton handkerchief, wrapped round the head, making two ugly streamers in front and a long tail behind, and though these are certainly in harmony with the coarse and angular outline of their figures, the general effect is anything but pleasing. In all ceremonies, but particularly that of marriage, the women envelope themselves in long cloaks like those worn by the men, but descending to the feet. But at weddings this lifelong mourning is relieved in a manner at once dignified and poetic. On the top of their heads the bride and bridegroom wear a broad golden star surrounded by flowing ribbons of various colours.

To judge from the names of some of the villages, as Dirschnitz, Dolitz, Dobran, Pograd, Lohma, &c., or of the rivers, one would imagine the population was purely Sclavonian. But German influence having long ago become dominant, the primitive characteristics of the people have become greatly altered; whether it was that German families became gradually mingled with the peasantry, or that the traits of the country people have been gradually modified by contact with the in-



VILLAGE OF THE UNTER-LOHMA.

habitants of the towns, where German manners, in consequence of the acquisition of Bohemia by the emperor, became fashionable at an early period. It is, perhaps, to this change, however, that this people owes the degree of prosperity and liberty which it enjoys. There are here no serfs, as in the rest of Bohemia. The land is generally the property of those who cultivate it, subject to no burdens, except a few trifling taxes, and rent in a few instances. The controversy about peasant proprietary, which has been raging so fiercely lately in England and Ireland, might have some light thrown upon it by a careful examination of this district; but we must say the facts, as far as they go, are decidedly in favour of a perpetuity of tenure, and the subdivision of the soil. By a singular adherence to original contracts, most of the rents or dues, valued by sacks of corn, are attached to particular houses in the town. They are, in short, attached to certain *fixed* property in the city, and are transmitted with it. This is due, doubtless, to the fact, that in past times, the district being on the route of the armies in the great continental wars, the seigneurs or landlords betook themselves for shelter to a fortified collection of houses, instead of separate castles, leaving their estates to the peasantry; and it is to this that Egra owes its origin. It possessed considerable importance in the middle ages. It is a very handsome little town, with a population of about 9,000, and is built on a slope on the right bank of a river of the same name. It still contains some houses sufficiently splendid to give an idea of its opulence in times gone by. Its fortifications were strong and extensive, but were altogether dismantled by Napoleon; but the castle, built on the summit of a lofty rock, is still a strong post, and in it are contained all that now remain of the ancient monuments of Egra. The principal is the old tower called the *burg*. It is built of enormous blocks of lava, from 12 to 15 feet in thickness, is one of the most ancient posts erected by the Franks to repel the incursions of the Sclaves. Under Charlemagne, Egra was the residence of the markgrafs, or guardians of the frontier in Nordgau. So that it is in some sort the first and indelible monument of civilisation amidst mountains covered with savage forests, and till then strangers to any edifice of stone.

The other building is a small chapel in the Roman style, attributed to the Templars by some, but with greater appearance of truth, by others to the Knights of the Cross. It lies within the castle and is divided into two stories, which communicate by an opening in the floor, which in the lower story is of granite, and in the upper, white marble. The whole is in a state of perfect preservation. It was in the belfry that the observatory existed, in which, according to tradition, Wallenstein went to consult the stars as to his future destiny.

The foundation of the town is said to have been laid in the tenth century. It was at first only an appendage to a castle inhabited by the Margraves of Vohburg. In the middle of the twelfth century it passed from the hands of that family into those of the Hohenstaufen, upon the marriage of the Emperor Frederic, with Adelaide de Vohburg. But it was soon after given in pledge by the unfortunate Conradin to his uncles of Bavaria, when he set out upon his expedition to Italy. Ottocar II., king of Bohemia, then conquered it in 1263, and by him its first charter was given in March, 1266. Ottocar was soon after pressed for money, and pledged the town to the emperor for 7,000 marks; and by a treaty made in 1277, it was agreed that it should remain in the hands of the latter. Since then it has been frequently alienated by the emperors, but simply as a pledge, over which they still retained the right of redemption. We shall return to it again.

REMARKABLE DWARFS.—II.

GEOFFREY HUDSON.

Geoffry Hudson was born in the year 1619, at Oakham, in the county of Rutland. At the age of eight years the Duchess of Buckingham presented him in a pasty to the Queen Henrietta Maria, wife of Charles I. When the incident took place, Geoffry was only eighteen inches high. During many years he remained of the same stature. At thirty, however, he began to grow rapidly, and in a little time he reached the height of three feet nine inches.

Geoffrey was a favourite with the queen. Natural was it, therefore, that he should have drawn on himself the attention of the court and the public. Becoming "the admired of all admirers," he was taken under the patronage of the wits, who competed with each other in transmitting his likeness to posterity. In the castle of Petworth, in the county of Sussex, there is a fine picture by Vandyke, representing Geoffrey Hudson, as standing by the side of Queen Henrietta. There also exists a good engraved portrait of him, which was published in London in 1790. And, not long since, there was visible on a house in Newgate-street, London, a bas-relief, exhibiting Hudson and a giant. This sculpture was intended to commemorate the event spoken of in the following anecdote: "On an occasion, in the midst of courtly festivities, a porter of the king's, whose stature was gigantic, suddenly drew the dwarf from his pocket, much to the surprise of the spectators."

Geoffrey Hudson, however, had a higher ambition than that of renewing the combats of the pygmies against the cranes; and on many occasions his conduct disproved the position, too hastily advanced by some, that dwarfs are morally as well as physically degraded beings. At the beginning of the civil war, Hudson was appointed captain in the royal army. In 1644, he followed the Queen Henrietta Maria into France, where, in consequence of a quarrel with a person of the name of Crofts, he challenged his enemy to engage in mortal conflict. Crofts duly made his appearance; but his only weapon was a large squirt. A real duel avenged this second insult. The two foes fought on horseback with pistols. At the first shot Crofts received a mortal wound. After the restoration of the royal family, Geoffrey returned to England. He died in 1682, at the age of sixty-three years. He was then in prison at Westminster, accused of a political crime.

NICHOLAS FERRY, SURNAMED BEBE'.

Nicholas Ferry offers a subject of considerable interest, because born nearer our own times, and at an epoch when the importance of observation was better felt, his life has been more exactly studied, not only in regard to his physical condition, but also his intellectual and moral faculties. He was born in November, 1741, at Plaisnes in the principality of Salins, in the mountains called the Vosges in the north-east of France. His parents were well formed, and of ordinary stature. They had several children after him. At the time of his birth he was eighteen inches long and weighed twelve ounces. The pains of labour were felt twice, and each time they lasted four and twenty hours. He was carried to church to be baptised on a dish decorated with fringe. His first cradle was a large wooden shoe carefully padded. So small was his mouth that he could not use the nipple, and he was in consequence fed on goats' milk. At six months he was attacked by the small pox. When eighteen months old, he began to speak; but it was not before the end of his second year that he was able to walk. Gay, lively, petulant like a squirrel, he was ever in movement and always out of place. The most constant and closest attention was required to keep him out of danger. As a precaution a separate apartment was assigned as his playroom. The coarse fare customary in the mountains, such as greens and potatoes seasoned with a little lard, was his only food until the age of six. During this period he gave no signs of growth. His superstitious parents fancied that he was under some evil fascination. Some writers describe him in his childhood, fighting like a brave knight against turkey-cocks, and putting them to flight. They also speak of an ewe who took him under her patronage.

His fame began to spread. Curiosity brought strangers from all sides to see and examine him. Stanislaus, the benevolent king of Poland, who after losing his crown assumed the title of Duke of Lorraine, heard of the new Lilliputian, and requested to see him. His father took him in a basket, which he carried on his arm, to Luneville, where the duke resided. His grace was astounded at the sight, and proposed to his father that the boy should remain in his palace. The villager had great difficulties in coming to a conclusion, but reflecting on the advantages which were likely to ensue to his family as well as the child, he yielded to the desire. At this epoch, he was carefully examined by Monsieur Kast, the queen's physician, who reported on him to the following effect:—"All the parts of his body were well proportioned. He had a pretty face, a well made aquiline nose; his eyes were of a deep brown colour; his hair white and silvery; he was partially marked with the small-pox. He weighed nine pounds seven ounces, and was about two-and-twenty inches high."

A new era now commenced for Nicholas Ferry. Clothes and furniture correspondent to his own size were made for him. A delicate and nutritious diet succeeded the humble fare of his father's cottage. He became an object of vivid interest in the duke's court. Amusements were devised for his recreation. He was sought after and caressed by the ladies of honour. He was the jewel and the toy of the whole palace. He seemed destined to lead a gelden existence. But his higher faculties remained inert. His friends and admirers were unable to teach him to read and write, and all their efforts failed to excite within him any religious ideas. To dance, and to beat the time of the dance with some exactness, were the only lessons in which he made proficiency. The historians of the time declare that his intelligence was little above that of a well-trained deg. Nor do they appear to have been in error, for when, a fortnight after his arrival at Luneville, his mother came to see him, he scarcely knew her. However, at her departure the instinct of nature revived within him: he threw himself into her arms, loaded her with kisses, and at first refused to be separated. Though ordinarily he manifested little sensibility, he formed a singular attachment to his princely patron. Then it was that he received the surname of Bebé. The following was the occasion:—In his fruitless attempts at acquiring the art of reading, he succeeded only in mastering the vowels. All the consonants he pronounced indistinctly as B. Stanislaus, in amusement, imitating his voice, called him B, B, Bebé. The joke became a nickname, which he never lost.

At six years of age his voice had no more volume than that of an infant a year old. His knees, especially the right knee, protruded somewhat, a circumstance which diminished his height by about half an inch. Not an instant did he remain quiet. Of an extraordinary vivacity, he learned to profit by the instructions he received in exercises of the body. They got made for him a small musket, which he succeeded in handling adroitly. He learned some military evolutions. Not seldom the court assembled to see Bebé, on a large table, go through his exercises in the uniform of a grenadier. While his intellect remained dormant, the passions were developed. He was prone to anger and jealousy, his feelings were too strong for his intellect. His mind was confused; there was no order, no sequence in his words. He showed only that vague intelligence which arises from circumstances, from the senses being struck, from momentary influences. Danger he did not know. Hurried on by his intense emotions and blind desires, he never allowed himself to be turned aside from an object, how frivolous soever. He had a graceful smile, though it was but seldom seen. Little as was his sensibility, he was capable of gratitude, and showed much regard to the ladies from whom he received attentions.

On one occasion, Stanislaus made him the hero of a comedy which he devised for the amusement of his court. The duke invited to dinner a number of lords, ladies, and persons of distinction. At the dessert, a strain of the sweetest music arose in an apartment contiguous to the dining-room. While the guests lent a gratified ear to its notes, the servants brought in a magnificent pasty, made in the form of a citadel, with towers, bastions, turrets, and ramparts, furnished with pieces of artillery and other warlike instruments all in sugar. Every eye was fixed in admiration on this masterpiece of confectionary architecture; when of a sudden the crust broke asunder, and

the dwarf darted out armed cap-à-pie. Firing a pistol and brandishing a sword, he made pretence to fall on the officers who were present, and who seemed no little disconcerted at the unforeseen attack. Laughter broke forth and echoed round the board. After his campaign, Bebé returned, and took post as sentinel near the pie, when, in his turn, he was assailed with showers of sweetmeats thrown by the ladies, under which he was almost borne down. After he had valiantly endured the onslaught, the redoubtable warrior was praised, admired, and fondled. The story of the pasty, narrated at full length in the journals of the day, raised his celebrity to its zenith. Stanislaus caused his portrait to be painted in all manners, and took pleasure in making presents of it to his friends. Foreigners of distinction, and even princes, travelled to the ducal court, in order to see the marvellous dwarf. Several attempts were made to get possession of his person, and carry him off. They all failed. Now, a servant who had been gained over for the purpose, suddenly seized Bebé, and put him in his pocket. Now, a postillion hid him in one of his capacious boots. And now again, he was laid hold of and enveloped in the cape of a travelling coat. But the dwarf uttered the most piercing cries, and so effected his liberation.

To preclude the possibility of his being stolen, several pages were placed around his person, who were commanded to accompany him everywhere, and never to leave him by himself. The restraint became painful. He felt as a prisoner, and fell into a deep melancholy, under which he pined away. To relieve his tedium and restore his cheerfulness, Stanislaus benevolently employed a thousand ingenious resources. He caused to be constructed for him a beautiful house that moved on wheels. It was a veritable mansion, with vestibule, hall, parlours, and bed chambers; in the exterior was a garden planted with trees, adorned with flowers, set out with lawns and refreshed with ponds of water. All the furniture was in proportion to the size of its master. A room was set apart for billiards, and various other means of amusement were provided. Moreover it was peopled with dwarf animals of all kinds; here was a leveret not larger than a rat; there a pair of turtle doves, a present from the empress of Russia, white as snow, and not bigger than a sparrow. Children from the village were invited to share in these amusements; and soon Bebé's sadness disappeared.

About this time Stanislaus went to the court of Versailles to pay a visit to his daughter, the Queen Marie Leczinska, the spouse of Louis XV. The favourite was one of the party. He was not allowed to quit the prince. Indeed he did not leave him for a single moment. He dined at his side, he slept in the same chamber. He became the admiration of all the great ladies of the French court, who, charmed with his politeness, disputed one with another for his possession, and passed him from hand to hand.

On his return from Versailles, Bebé resumed his former mode of life. But it was seen that his feeble intelligence still grew weaker. One day, being in the country, he went into a field the grass of which was taller than himself. He thought himself lost, and began to cry for help. He also became more irascible. We have said he was jealous. We give an instance. The person whom he seemed to love most after his benefactor, was the Princess de Talmond, a woman of great mental adroitness, who had taken considerable pains for his education. Bebé became so attached to her, that he could not endure that she should love any object more than himself. Seeing that lady one day fondling a little dog, he fell into a passion, snatched it from her hands, and throwing it out of the window, exclaimed, "Why do you love it more than me?" Yet Bebé had not a bad heart. He loved to do good. His greatest pleasure was to distribute to the poor out of his well-furnished purse. Every Sunday, placing himself in the balcony of the mansion, he threw out to them pence wrapped in papers of different colours. When among the indigent applicants he observed a child, he substituted shillings for the pence, and took care that the object of his favour received his bounty.

On reaching the age of fifteen, Bebé manifested tokens of puberty. But this his age of maturity was also the epoch of his decline. He was then nine-and-twenty inches high. His health began to suffer rapidly. His features lost their graceful expression. His spine took a curvature; his limbs became weak; his head stooped. All the signs of premature old age appeared.

In the year 1761, a strange ceremony took place at Luneville A female dwarf, fifteen years old, and about thirty-three inches high, born also in the Vosges, was brought to the duke's palace. It was resolved that she should be betrothed to Bebé. The couple were richly attired. Grand festivities took place, at which the dwarfs occupied the place of honour. Nevertheless, the marriage was not consummated; death put a stop to it by carrying Bebé off before it was concluded.

The last year of his life Bebé seemed beaten down. He ate very little. He became sad, disquieted, insensible to everything, and wept much. Hardly was he able to walk. His face became wrinkled. In the month of May, 1764, he fell ill; a cold and fever threw him into a lethargy, out of which he occasionally revived, but without regaining the power of speech. His mother came to lavish her cares upon him, but scarcely did he recognise her. The last four days of his existence he became more sensible to outer objects; ideas at once more correct and more consecutive than he had given utterance to in health, astonished those who were around him. Stanislaus was then at Nancy. Several times Bebé urgently asked to see his "good friend," repeating every moment the name of his benefactor, he breathed his last in his mother's lap, just after he had said, "I shall not then be able to kiss once more the hand of my kind friend." He expired on the 9th of June, 1764, being nearly twenty-three years of age. His height was at the time three-and-thirty inches.

The duke of Lorraine felt his loss severely. He gave Bebé a magnificent funeral. The heart of the dwarf was embalmed, and placed in a mausoleum erected to his memory in the church des Minimes at Lunoville. On this tomb his portrait was engraved, with an inscription in Latin. He was also modelled in wax, and the statue is still preserved in the cabinet of the Faculty of Medicine at Paris. His skeleton has been preserved among the anatomical collections of the Museum of Natural History in that metropolis. The following is a translation of his epitaph:—

HERE LIES

NICHOLAS FERRY;

A Lorraine.

Nature's plaything. In virtue of the smallness of his Stature, he was beloved by the modern Antoninus.

Old in the flower of existence. For him five lustres were an age.

He died the 9th of June, in the year 1764.

BORWILASKI.

Another dwarf, contemporary with Bebé, and almost as celebrated, was a Polish gentleman, named Joseph Borwilaski. He bore the hereditary office of grand sword-bearer to the crown of Poland, and was attached to the suite of the Countess Humieska. Borwilaski, from his childhood, showed much intelligence and aptitude of mind, and always enjoyed good health. He, in a short time, learnt to read and write; he also mastered the German and French languages, which he spoke with much facility. He wrote an account of his own life. Borwilaski is described by the writers of his times as ingenious in whatever he undertook, ready in repartee, and accurate in his reasonings. He may indeed be regarded as having been a perfect man, although short of stature.

About the age of two-and-twenty, Borwilaski married, and had several children, all well made, and of ordinary size. He reached an advanced old age. In his latter years his person underwent a marked augmentation. This remarkable dwarf was the son of parents who were much above the medium height. He had four brothers, of whom one, his senior, was only four-and-thirty inches high, and the three others, born after him, reached about five feet and a half. The sixth child was a girl, who, when six years old, was only twenty inches high. To these curious details, we may add that Joseph Borwilaski, as well as his sister and elder brother, were in their infancy deformed in the greatest degree, though all three afterwards became well proportioned, and of an agreeable figure.

GERARD EDELINCK.

A MEMOIR of Charles Lebrun, which was read before the French Academy of Painting and Sculpture in 1749, by the painter Desportes, contains the following passage:—

"In 1661, Louis XIV., being at Fontainebleau, demanded of Lebrun a painting, of any sort he pleased, leaving the choice of the subject entirely to himself. An apartment in the palace, close to that of the king, was assigned him, and his Majesty came nearly every day to see him at work, and was not less pleased with the painter's manners and conversation than with the productions of his pencil. It was thus that Lebrun completed, almost under the king's eye, the painting of 'the Family of Darius,' which M. Edelinck has so well engraved. He chose the moment when Alexander the Great, issuing victorious from the battle-field of Issus, came accompanied by Hephestion to pay a visit to the queens of his prisoners, and the whole royal family of Persia. The mother of Darius is there seen, bowing herself at the feet of the favourite, whom, from the richness of his armour, she mistook for the king himself, and being informed of her mistake, asking pardon of the conqueror; and so well is the expression of the faces rendered, we can fancy we hear Alexander saying gently, "You have made no mistake; it is my other self." The execution of this beautiful piece was the culminating point of the painter's career. It had the effect of confirming him in the king's favour, who bestowed on him letters patent of nobility, and arms consisting of a sun on a field of gold, and a fleur-de-lis on a field of azure, with a helmet opposite. He also made him a present of his portrait, mounted with diamonds of great value, and appointed him his painter in July, 1662, with a salary of 12,000 livres a year. He also gave into his keeping all the drawings and paintings in his collection, and authorized him to add to it, as his taste might direct, all the finest works in painting and sculpture that he could procure from any European cabinet."

This accumulation of favours and rewards shows with what enthusiasm the painting must have been received at court. In the figures, some of Lebrun's contemporaries affected to discover the expression of all the passions. The *Family of Darius* was soon reproduced by all the different artistic processes known at that period. Henri Tontin, the son of Jacques Tontin, first painted Lebrun's picture on enamel, and when it was proposed to engrave it, Lebrun selected Gerard Edelinck, as in his opinion possessing the steadiest and most delicate touch of any man of his day. The biography of this famous engraver has often been written, but perhaps a more interesting notice of him does not exist, than may be found in the unpublished papers of Mariette, preserved in the Cabinet des Etampes of the Bibliothèque Nationale, at Paris. "Although," says he, "Gerard and Jean Edelinck were born at Antwerp in the Low Countries, and there acquired an elementary knowledge of their art, and are by some numbered amongst the Flemish engravers, France has a right to appropriate them, and it would be a species of theft to take them from her. When these two artists arrived in Paris they were very young, and were scarcely known by their works. It appears also that had they remained ever so long in their own country, they would have wanted those favourable opportunities for the development of their talents, which were afforded them in France." In the latter, the arts were then cultivated with the highest *eclât*. Jean Baptiste Colbert, then prime minister, to whom the king had confided the superintendence both of the arts and manfactures, diligently sought out all those who were distinguished in their several departments, and heaped upon them honours and rewards in abundance; so that the artists from the neighbouring countries crowded to France to partake of these advantages. It was under these brilliant auspices that the brothers Edelinck arrived in Paris. John Edelinck came first; Gerard, the elder, arrived soon after, and singularly enough, he obtained some employment on the very day of his arrival; but when he found means of mak-



DRAWN BY PAUQUET.

ing himself known to Lebrun, he was enabled fully to gratify his desire for fame and honours. He was already very skilful in his art, and Lebrun, who was very quick in discovering merit, had little in assuring himself of its existence in his case also. He could have given no better proof of the esteem in which he held Edelinck, than his selection of him to engrave the *Family of Darius*, a picture upon which he had lavished all the resources of his art, and which had delighted the whole court. The greatness of the undertaking, the difficulty of impressing upon each face that expression for which the original was so much admired, did not deter Edelinck, but rather stimulated and encouraged him; and in fact, so great pains did he take with his work, that this engraving alone served to give an idea of capacity. Nothing is neglected; each object is treated in the style and manner which suit it, and in the whole there is a softness of tone and brilliancy of colouring such as are rarely met with. Edelinck engraved with great ease, as he did everything in the first attempt, and had seldom to return upon his work, like most artists, and those who saw him at work were surprised at the facility with which he ran his graving tool over the copper-plate. There are a great



ALEXANDER THE GREAT ENTERING THE TENT OF DARIUS, ENGRAVED BY EDELINCK FROM A PAINTING BY LEBRUN.

number of his engravings extant, many of them portraits of illustrious men. He succeeded to the property of Ranteuil, whose niece he married. The king appointed him his chief engraver, and on the same day on which he was received into the Royal Academy, the title of Counellor of the Academy was decreed him, an honour which had never previously been conferred upon any one. He died on the 3rd of April, 1707.

His great celebrity will justify us in giving a list of some of the best of his works in detail, for which we are indebted to Bryan's "Dictionary of Painters and Engravers."

"The Holy Family, with St. John, St. Elizabeth, and two Angels; after the picture by *Raffaelle*, which was in the collection of the King of France; very fine. The first impressions are before the arms of Colbert, the second are with the arms, and in the third the arms have been effaced, but the frame in which they were inserted remains. The Virgin Mary sewing, with the Infant sleeping in a Cradle, surrounded by Angels, called *La Couseuse; after Guido;* fine. The Holy Family, where St. Joseph is presenting Flowers to the infant Jesus; inscribed *Dilectus meus, &c.; after C. Maratti.* The Holy Family, called the *Benedicite; after le Brun.* A Female Saint, holding a Lily, and kneeling before the Virgin and Infant seated on a Throne, to whom she presents a Book; *after P. da Cortona.* Mary Magdalene penitent, trampling on the Vanities of the World. It is the portrait of Madame de la Valiere; after the picture by *le Brun*, at the Carmelites at Paris. The first impressions are without the inscription, and are very scarce; the next best are without the border. St. Louis prostrating himself before a Crucifix; *after le Brun.* St. Charles Borromeus kneeling; *after the same.* The Crucifixion, surrounded with Angels; on two sheets; *after the same.* Moses, half-length, holding the tables of the Law; *after P. de Champagne;* engraved conjointly with Nantueil. Christ and the Woman of Samaria; *after the same.* The Virgin Mary at the foot of the Cross; *after the same.* St. Jerome; *after the same.* St. Ambrose; half-length; *after J. B. Champagne.* St. Basil and St. Gregory; the same; *after the same.* A Combat of Cavalry, four Horsemen fighting for a Standard, with three dead Figures on the ground; after the celebrated Cartoon by *Leonardo da Vinci.* The name of the painter is incorrectly written *L. de la Finse, pinxit;* very fine. Louis XIV. on Horseback; in two sheets. The impressions before the name of Edelinck are scarce. The same subject, with a Group, instead of the Scroll and the Standard. Louis XIV. on Horseback, preceded by the exterminating Angel, and his Enemies overthrown at his feet; in three sheets; very fine. Louis XIV. in a Triumphal Car, drawn by the Four Evangelists, called the Extirpation of Calvinism; in two sheets; fine and scarce. Louis XIV. giving peace to Europe; in two sheets. Alexander, accompanied by Hephestion, entering the Tent of Darius; on two sheets; *after le Brun.* The first impressions have the name of Goyton at the bottom. This print completes the set of the Battles of Alexander; engraved by *Gerard Audran; after le Brun.* Alexander entering the Tent of Darius; *after Mignard;* engraved by *Edelinck* and *P. Drevet.*"

His engravings of portraits of illustrious men are very numerous, and yet from their great excellence are very highly prized. To enumerate them would fill a column. He is best known in France as the engraver of Lebrun's battle-fields, comprising most of the great victories of Louis XIV.

THE HILLS AND VALLEYS OF HUMAN SOCIETY.

THERE is an obvious analogy between the hills and valleys of the natural world, and the higher and humbler classes of society. We need not define it. Its existence may be assumed, and its general character is sufficiently understood for our present purpose. It is suggestive of some not uninteresting thoughts.

We associate with a mountain the idea of majesty and grandeur. It towers, as if in conscious independence, amid storm and sunshine, above things earthly, aspiring to mystic communion with things celestial. So with the aristocracy of birth and wealth, the princes of rank and of commerce. They rise, in appearance, above their fellows of mankind, and become as prominent in social life as mountains are on the earth's surface. But there are mountains of different orders. There are some whose relation to the surrounding region is one of ornament and usefulness, and there are others which are the occasion of constant and universal dread. There is the Hermon, whose glory is recognised afar, and whose dew descends in peace and refreshment on all the plains around. And there is the Vesuvius which pours forth fire and death, and keeps its neighbourhood in perpetual alarm. There are the Prince Alberts who aim to make their elevation known and felt only by influences that foster peace and human happiness. And there are the Napoleons, filled with a spirit of murderous selfishness, whose wide crater is ever vomiting forth destruction.

The volcano itself may have an important place, and on the whole a beneficial one, in the operations of nature. It is probably, as it has been called, the world's safety valve. There is in the bosom of the earth either a molten sea of fire, or a combination of things, which under certain conditions must find vent for internal fires, or shiver the crust of the earth into irremediable destruction. And it is probable enough that volcanoes are those vents or safety-valves by which we are saved from so terrible a catastrophe. Now, it is possible that the Cæsars and Napoleons of the world have their office, too, to perform in universal providence. But we do not on that account the less justly associate their names with all that is repugnant and calamitous. If our readers have been to see Wyld's great model of the earth, they have not failed to observe that tremendous range of fire-topped mountains which skirts the western coast of South America. But they would rather have their dwelling among the quiet genial hills of their own land than in the august volcanic region of the western world.

With a valley we associate the idea of lowliness and humility. It lies hidden ofttimes among the mountains, separated from the rest of the world in the deepest obscurity. The ideas of quiet and peacefulness, fertility and beauty, cluster around it likewise. We have often gazed with exquisite delight on a beautiful and fertile valley embosomed amid majestic mountains. The eye has wandered from the highest mountain-top to the lowest recess of the valley, and has endeavoured to embrace every circumstance that contributed to the dignity of the one, and the beauty of the other. And we have felt how foolish it is to institute any comparison, and say which ministered most to the soul's joy.

Now, there is nothing more beautiful than the valley of humble life when fruitful of virtue, and adorned with grace. One of the best descriptions of such life to be found in any language is "the Cottar's Saturday Night," by the Scottish bard, Robert Burns. The Scottish phrases render some parts of it unintelligible to an English reader; but the greater part of it is in simple English.

The Cottar is a poor agricultural labourer. On a chill November night, he

> "Collects his spades, his mattocks, and his hose,
> Hoping the morn in ease and rest to spend,
> And weary, o'er the moor, his course does homeward bend."

He receives a cordial greeting from his wife and children, and then,—

> "His wee bit ingle, blinkin bonnily,
> His clean hearth-stane, his thrifty wifie's smile,
> The lisping infant prattling on his knee,
> Does all his weary carking cares beguile,
> And makes him quite forget his labour and his toil."

The elder children are engaged in various services in neighbouring farms, and arrive one after another to enjoy their Saturday evening in their father's humble cot. Their cheerful conversation on the week's engagements and events is succeeded by a supper of very humble fare. And then—

> "The cheerful supper done, with serious face,
> They round the ingle form a circle wide;
> The sire turns o'er, with patriarchal grace,
> The big Ha-Bible, once his father's pride; . . .
> He wales* a portion with judicious care,
> And 'let us worship God!' he says, with solemn air."

The poet then proceeds to say how "they chant their artless notes in simple guise," and how the priestlike father reads the sacred page.

> "Then kneeling down to heaven's Eternal King,
> The saint, the father, and the husband prays;
> Hope springs exulting on triumphant wing,
> That thus they all shall meet in future days:
> There ever bask in uncreated rays,
> No more to sigh or shed the bitter tear,
> Together hymning their Creator's praise,
> In such society, yet still more dear;
> While circling time moves round in an eternal sphere.
>
> "Then homeward all take off their several way:
> The youngling cottagers retire to rest;
> The parent pair their secret homage pay,
> And proffer up to heaven the warm request
> That He who stills the raven's clam'rous nest,
> And decks the lily fair in flowry pride,
> Would in the way his wisdom sees the best
> For them and for their little ones provide;
> But chiefly in their hearts with grace divine preside."

It was no picture of imagination the poet drew in his Cottar's Saturday Night. He had witnessed the scenes which his pencil has described so tenderly, and he painted to the life—and "from scenes like these," he said, with patriotic pride, "old Scotia's grandeur springs." Such valleys as these are found even in this London of ours. There are many persons and many families around us in very humble life, in whose virtues we realise more beauty than in the fairest landscape.

But then there are other valleys of another order in the world. In the island of Java there is the Valley of Death or of Poison (Guevo Upas). Every living being which penetrates into it falls down dead, and the soil is covered with the carcases of tigers, deer, birds, and even the bodies of men—all killed by the noxious gases with which the bottom of the valley is filled. Of the same character is the celebrated Grotto del Cane in the neighbourhood of Naples, which is constantly giving out volumes of carbonic acid gas, and whose bottom is so filled with it, that it proves speedily fatal to any animal that is immersed in it, as is proved by the well-known experiment of throwing a dog in. In the same neighbourhood, midway between Mount Vesuvius and Mount Vultur, there is what is called the Vado Mortale, or Mortal Way, a particular spot in the course of a rivulet which flows from the Lake Ansanto, "which, it is said, cannot be forded without death, and has been described as exhibiting on its borders, an accumulation of the whitened bones of the various animals that had perished there, destined to continue for ever on the spot where they fell, because no living creature can approach to take them away without adding to their number." And though this is an exaggeration, it is well known that the cutting down of a wood which separated this spot from a town four miles distant has greatly injured the health of the inhabitants. One illustration more we may give in the deep caldron of the valley of the Dead Sea, where we seem to behold the blight of a universal curse:—

> "Here,—above, around, below— . . . .
> Nor tree, nor shrub, nor plant, nor flower,
> Nor aught of vegetative power,
> The weary eye may ken;
> For all is rocks at random thrown.
> Black waves, bare crags, and banks of stones,—
> As if were here denied
> The summer's sun, the spring's sweet dew,
> That clothe with many a native hue
> The bleakest mountain side."

The *social* valleys that are analogous to such as these—alas! we live in the midst of them. There has been a book published on

* *Anglice*—"selects."

the moral geography of society, which introduces us to the knowledge of its lowlying swamps and poisonous valleys—"London Labour and the London Poor." It were a great mistake to suppose that there is anything in labour, or anything in poverty that is at all analogous to the mephitic and destructive gases which make such places as the Guevo Upas scenes of poison and of death. But never did geographer describe hill or dale with more minuteness than does the author of this book those pestiential valleys of human society into which he has penetrated, and of which he has given so dismal a report.

The hills and valleys of human society are not artificial or necessarily evil. We do not say that all existing inequalities are right. For instance, there are some millions of slaves in the world, owned as property by masters, who work them and sell them as they do beasts of burden. Neither the Negro, nor any other race has been made to occupy this degraded and inhuman position. The ethnologist may talk of the Syro-Arabian as the model man, but he is compelled to acknowledge that the Hottentot and the Negro are men likewise. And to admit one's true and proper humanity, is to admit the possession of a dignity that is wholly at variance with the idea of slavery. It is said of the Jews of old, that they would not willingly tread on the smallest piece of paper in their way, but took it up; for "possibly," they said, "the name of God may be on it." In this, there was more superstition than reverence. But reason and reverence say, "Trample not on man, for the image of God is there."

What we insist on is, that the distinction of ruler and subject, master and servant, employer and employed, rich and poor, are not produced by either wicked or foolish laws, but arise out of the very constitution of human nature and human society. Man being what he is, social equality is a simple impossibility. Let the citizens of London be all made equal in wealth and in social advantage at sunrise, they will cease to be equal before sunset. The superior intellect, the superior industry, the superior virtue, and perhaps, not in a few instances, the superior craft of some men will in the course of one day raise many thousands and depress as many more. The uniform dead level of the morning will disappear, and hills and valleys occupy its place before evening.

It is useless to quarrel with this "great fact." It cannot be otherwise so long as man is what he is. Nor is it necessarily an evil. The mountains and valleys of the earth are not an evil; they secure to us benefits which we could not have without them. Look, for example, at the Great Sahara. This African desert extends over a hundred and ninety-four thousand square leagues, an area nearly three times as great as that of France. This immense region, one great plain, is but a wide desert. Only suppose that in some of its central parts, the upheaving power of subterranean movements should be exerted, either in one tremendous act of power, or through a series of ages, accompanied at intervals by volcanic eruption, such as gave rise at once in 1755 to the mountain of Jorullo, 1600 feet high, on the Mexican plateau. Let a great mountain chain be the result, and it is obvious that a complete transformation in the state of the climate would be brought about through a vast area. "We may imagine the summits of the new chain to rise so high as to be covered like Mount Atlas for several thousand feet, with snow during a great part of the year. The melting of these snows, during the greatest heat, would cause the rivers to swell in the season when the greatest drought prevails; the waters, moreover, derived from this source, would always be of lower temperature than the surrounding atmosphere, and would thus contribute to cool the climate. During the numerous earthquakes and volcanic eruptions supposed to accompany the gradual formation of the chain, there would be many floods, caused by the bursting of temporary lakes, and by the melting of snows by lava. These inundations might deposit alluvial matter far and wide over the original sands, as the country assumed various shapes, and was modified again and again by the moving power from below, and by aqueous erosion of the surface above. At length the Sahara might be fertilised, irrigated by rivers and streamlets intersecting in every direction." So far are the inequalities of the natural world from being an evil, that we are indebted to them for almost everything that makes the earth beautiful and fertile. The inequalities of social life apart from the fruits of sin, serve an almost equally beneficial purpose. Without them there are many virtues and graces which could find no sphere of exercise.

Then, too, much of the evil which is found in high or low estate is of man's own making. If we ascend the hills of human society, we shall find it is so there. Ambition, envy, malice, lust, all contribute their share to the intense and wide-spread misery that lies beneath the purple robe, or is carried along in the glittering equipage. If we descend into the valleys of human society, we shall find it the same there. Intemperance, licentiousness, dishonesty, convert many a fair spot which might be a very garden of Eden, into a Guevo Upas, or a Vado Mortale. And it were far more reasonable to direct our energies against the moral pestilences which destroy the health and peace of all classes, than against those mere distinctions, none of which can secure happiness, and none of which exclude those causes which destroy happiness. We have seen on a mountain side a cottage partly of turf, within whose humble walls there lived a poor old man, the patriarch of his village, though without family or child of his own. We have seen the children of the place gathered round his turf fire, and reading by turns such scientific books as the old man could help them to understand, the light by which they read coming from pieces of fir-wood blazing on a large stone beside the fire-place. Happier children there never were than those who formed that privileged circle. And now, grown to manhood, and scattered over the face of the wide world, they cherish the scene as one of their happiest recollections, and hold the memory of the venerable Christian as worthy of everlasting remembrance. Were all homes like that home, there would be fewer prodigal sons, and fewer parents would descend with sorrow to the grave.

There is less real difference between high and low in point of happiness than is generally supposed to exist. True happiness is remarkably independent of circumstances. We question whether Napoleon was a happier man when at the head of victorious armies than when a dethroned exile on the rock of St. Helena. Charles V. was a happier man in the convent, amusing himself by the construction of time-pieces, than when he had swayed the sceptre of the greatest empire of his day. Louis Philippe may have had as much real enjoyment in the seclusion of Claremont and in the reverse of his fortune, as when he sat on the throne of the kingdom of the French. While Louis Napoleon can scarcely be regarded happier in the virtual throne which he occupies in the presidential chair, than when he wandered through England and America without dominion and without a country. The most brilliant crown, when once it is set on a wearer's brow, often becomes a crown of thorns. It is quite the same in other social differences. Take men and families on the average, and it will not be found that the employer is a happier man than the employed, or the master than the servant. And as for riches, though regarded by many as a cure for all evils, they prove the occasion of more sorrow and care than even poverty itself. The care of keeping wealth is often greater than the care of getting it or wanting it. The miser who cannot sleep for fear of the robbers is no more to be envied than the poor man who cannot sleep for fear of want.

One remark more. Happily with us there is no impassable barrier between the various classes of society. The castes of India are founded on a supposed difference of origin; one caste having sprung, according to the Hindoo system, from the head of Brahma, and another from his feet. And no man may therefore pass from one to another. But our laws and circumstances furnish many facilities for transition from one class to another. As to coming down, it has always been an easy process. When living in a northern city, some years ago, the meat used to be brought from the butcher's shop to the writer's door by an old man, whose position in society was once such that he has sat at the table of the present Earl of ———. And there were two scavengers on the streets of the same city who had had a University education! To rise is not quite so easy as to fall. And yet the changes upwards have been, and still are so many, and so striking, that every year would furnish materials for a history of considerable bulk. Were the Lives of the Lord Mayors of London before us, we should find it recorded in innumerable instances, to the high honour of their lordships—"he was a poor man's son." And poor men's sons will do well to remember that the road to advancement is paved with intelligence, industry, and good character.

THE SCIENCE OF PLANTS.

THE FRUIT.

At a certain stage in the history of vegetation, the flower answers the purpose for which it was formed in regard to the plant, in its function of *reproduction*. The anther bursts, the pollen it contains is scattered around, and from its action the young seed

Fig. 178.



Columbine.—Follicle.

Fig. 179.



Lotus.—Pod.

Fig. 179 *b*.



Section of Cherry.

Fig. 180.



Buttercup.

Fig. 181.



Buck-wheat.

begins to enlarge, and becomes capable of giving rise to a new plant. Without the pollen the seeds would either not enlarge, or when full-grown, would be incapable of germinating.

The fruit, whatever be its character, is therefore the germen

Fig. 182.



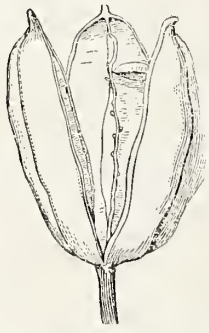
Meadow Saffron.—Capsule.

Fig. 183.



Gentian.—Capsule.

Fig. 184.



Iris.—Capsule.

arrived at maturity. It is composed essentially of two parts—the *pericarp* or *seed-vessel*, and the seed.

The *pericarp*, or part which immediately invests the seed or seeds, varies extremely in size, thickness, and texture. It is

Fig. 185.



Poppy.—Capsule.

Fig 186.



Lychnis.—Capsule.

Fig. 187.



Pimpernel.—Capsule.

Fig. 189.



Treacle Mustard.—Silicula.

always formed of three parts—the *Epicarp*, *Mesocarp*, and *Endocarp*. The epicarp is an external membrane or thin skin; the mesocarp is the layer immediately under the epicarp, and may be thin or thick, dry or juicy; the endocarp is the innermost membrane, varying in texture, and bounding the cavity which contains the seed. In the cherry, for example, the glossy skin is the epicarp; the pulpy mass is the mesocarp, and the hard shell covering the seed is the endocarp (fig. 179 *b*.)

The following may be mentioned of the very numerous varieties of fruits :—

A *capsule* (figs. 182—187), is a dry seed-vessel. It frequently splits in a regular manner into several parts when ripe. These parts are called *valves*. If internally it consists of a single cavity, it is called *unilocular*, or one-celled; but there are often two or more cavities. These cavities or cells are separated by partitions, and there is frequently a central stalk or column to which the seeds are attached.

Fig. 188.



Celandine.—Siliqua.

Fig. 190.



Maple.

A *follicle* is a dry seed-vessel, opening on one side only, and having the seeds loose in it (fig. 178).

A *pod* or *siliqua* (figs. 179, 188), is a long dry-seed vessel, of two valves, separated by a longitudinal partition, to the edges of which the seeds are alternately attached. When the pod is as broad as long, it is called a *pouch* or *silicula* (fig. 189). Sometimes the pericarp takes the shape of a long thin lamina or plate, as in the maple (fig. 190), when it is called the *wing*.

The *legume* is a dry elongated seed-vessel formed of two oblong valves, without any longitudinal partition, and bearing the seed along one of its margins only.

Fig. 191.



Chestnut.

Fig. 192.



Bella Donna.—Berry.

Fig. 193.



Mulberry.

The *nut* is a seed covered with a hard pericarp or shell, which does not burst. The seed is called the *kernel* (fig. 191).

The *drupe* is a seed, covered with a hard endocarp, or fleshy mesocarp, and a membranous epicarp (fig. 179 *b*).

The *berry* is a juicy fruit, which contains several seeds, and never bursts (fig. 192). The *compound berry* consists of several single ones, each containing a seed (fig. 193).

There is also the *cone* or *strobilus* produced by the pines, firs, &c. (fig. 194). Sometimes the fruit adheres to the pericarp as in the buttercup (fig. 180), and at others it does not, as in the buckwheat (fig. 181).

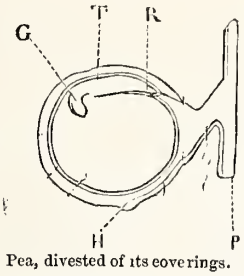
The seeds in the ovarium, prior to the opening of the flower, are quite soft, and their interior is filled up with a kind of pulp, which is enclosed in two or more envelopes. These seed-coats do not entirely cover the central envelope, but leave a small opening which is called the *foramen*. The pulpy matter contained in the ovules, consists of starch and sugar, and these nutritious substances are absorbed by the cells of the embryo, which increase at their expense.

Fig. 194.



Cypress Fruit.

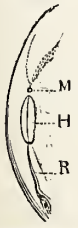
Fig. 195.



Pea, divested of its coverings.

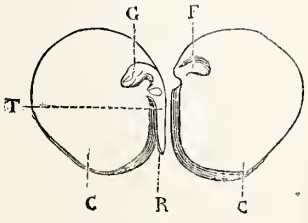
The first increase of these cells tends chiefly to produce those temporary structures, termed *cotyledons*, or seed-leaves (fig. 197, c c). These are pushed up to the surface of the ground, and there turn to a green colour, and perform all the functions of true leaves, until these make their appearance. Some plants are entirely destitute of these appendages, and are consequently called *acotyledonous;* those in which there is one cotyledon are called *monocotyledonous* (fig. 199); others, in which there are two, are

Fig. 196.



ortion of the covering of a Pea.

Fig. 197.

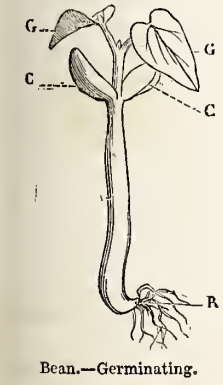


Pea.—Cotyledons.

called *dicotyledonous* (fig. 198); while others, as the pines (fig. 200), possess many cotyledons.

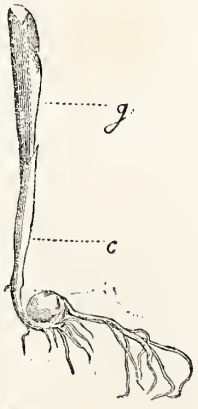
If a pea be stripped of its coverings, it will appear as in figs. 195, 196. The seed is attached to the placenta by a small *pedicil*, called the *podasperm* P. The seed is composed of an external skin, called the *testa*, or *perisperm* T, and a *kernel*, or *nucleus*. The vascular cord communicating between the nucleus of an

Fig. 198.



Bean.—Germinating.

Fig. 199.



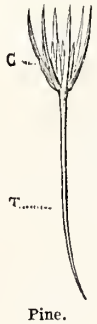
Maize.—Germinating.

ovule and the placenta, when the base of the former is removed from the base of the ovule, is called the *raphe* R. The *chalaza* H, is the vascular disk caused by the expansion of the vessels of the raphe, on reaching the base of the nucleus of an ovule, after passing up the side of the latter.

In the dicotyledons, the two large fleshy lobes are the cotyledons (fig. 198, c c), and between them is the real germ G G. Its upper extremity called the *plumula*, subsequently develops itself into the stem, and puts forth leaves, whilst the lower part becomes the root. The plumula has sometimes the appearance of the plant in miniature; its leaves and buds being quite apparent, though on a very small scale.

In a dicotyledonous seed we observe leafy cotyledons, and a separate albumen; but tho cotyledons only act as temporary leaves,—the nutritious part of the seed being retained within its coats, until it is exhausted by the young plant. In the seeds of the monocotyledons, the albumen is always separate; and the

Fig. 200.



Pine.

Fig. 201.



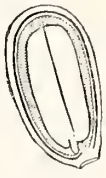
Plaintain.—Grain.

Fig. 202.



Nettle.—Fruit cut vertically.

Fig. 203.



Sage.—Fruit cut vertically.

Fig. 204.



Carpel opened.

embryo, which occupies but a small proportion of the whole mass, cannot always be readily distinguished in the midst of it until generation commences. At first, the cotyledon completely sheathes the plumula, which afterwards pierces it, and unfolds its first true leaf.

Seeds are various as regards their structure and position, in the ovarium, as will appear on examining the figs. 201 to 204. Some have remarkable coverings, as in figs. 211 *b* to 214.

At the time of the ripening of the seed, the cotyledon forms the greatest part of the embryo or young plant; but beside this, the seed contains a considerable quantity of starch, destined for the

Fig. 205.



Valerian.—Flower cut vertically.

Fig. 206.



Almond.—Kernel opened.

Fig. 207.



Flax.—Cut transversely.

nourishment of the young plant, when it is beginning to sprout, and still unable to take in food for itself. This starch is sometimes absorbed into the tissue of the cotyledons, rendering them thick and fleshy, as in the pea or bean; and then these, with the small germ to which they belong, form the entire contents of the seed. In other instances, however, the cotyledons are thin, leafy organs, and occupy, with the germ, but a small part of the seed; the remainder then consists of a separate store, which closely resembles the yolk-bag of the egg, and is termed the *albumen*. Such is the case with the seeds of all monocotyledonous plants; and

also, in some cotyledons, as the ash and horse-chestnut. The figs. 208 to 211, and 215, 216, show the relative positions of the cotyledons and albumen.

In fig. 217 is the representation of a young ovule, and in fig. 218 there is a section of the same ovule after fecundation. Sometimes an ovule is *reflected*, as in fig. 219, and in others *curved*, as in fig. 220.

Fig. 208.



Dock Sorrel.—Fruit cut vertically.

Fig. 209.



Wallflower.—Seed cut vertically.

Fig. 210.



Lychnis.—Seed cut vertically.

Fig. 211 *a*.



Lion's Foot.—Seed cut vertically.

Fig. 211 *b*.



Yew.—Fruit.

The presence or absence of partitions in the ovaries is a very important distinction. An ovary may be one-celled, because it consists of but a single carpel; or being *syncarpous*, it may contain an undivided cavity, from the partitions originally formed by the walls of the several adhering carpels becoming obliterated. In this instance, the attachment of the ovules or *placenta*, is either

Fig. 212.



Willow.—Seed.

Fig. 213.



Euphorbium.—Shell.

Fig. 214.



Celandine.—Seed cut vertically.

Fig. 215.



Pansy.—Seed cut vertically.

Fig. 216.



Ivy.—Seed cut vertically.

Fig. 217.



Ovule.

central, the ovules being clustered around a central column (fig. 207), or *parietal*, where they are attached to the outer wall (figs. 205 and 206).

A peculiar enlargement of the receptacle, which sometimes expands between the bases of the carpels so as to separate them more or less completely, as in the strawberry, is often very characteristic of particular orders. The ripened ovary or fruit exhibits

Fig. 218.



Ovule after fecundation, cut vertically.

Fig. 219.



Ovule.

Fig. 220.



Wallflower.—Ovule cut vertically.

numerous and remarkable differences in its form, substance, and manner of bursting when ripe.

There is frequently an important difference as to whether the *number* of ovules is definite or indefinite; but still more important is their *position*. The chief distinctions are those which are *erect*, and those which are called *pendulous*, because hanging from the top. There are, however, other intermediate conditions.

THE SISTERS IN ART.

PART II.

"I will not attempt to speak of his child's grief," went on old Ralph, after a pause, which not even the cynical dealer in curiosities was harsh enough to break—"as it would be grief for me to do so, for she had been poor Robert's constant companion from the hour his wife died. However, she was removed to the parsonage in our village, for Mr. and Mrs. Lesnor, our old curate and his wife, had been made as it were Alice's guardians by Mrs. Fountains, when she tied up to the child in her will, a small annuity of fifty pounds per annum, being the only money she had at her free disposal, the rest going with the estate to her absent sons.

"To this, I have only to add, that the dear child has always had a great love for the pencil, and having been well instructed, both by Mrs. Fountains and by a drawing-master, who for the last two years has come once a week from York to give her lessons, she is already very clever and apt that way. Many doing as much and well would rest contented, but not so Alice, who is very like poor dead Robert in these things. So she has been pining for further instruction ever since the old drawing-master said plainly, that he could teach her no more, and as she has been failing in health of late, our good old curate and his wife do not like to oppose any longer her wish to come to London for a time, in order to obtain instruction in some academy she has been reading about. But they knew no one in London, or how to find a home where she could be protected, and so the matter rested till I thought of you; and this is why I've come so far, just to ask, if for the sake of her mother, and your relationship, you will perform this act of duty. But if undertaken," added the old man firmly, "it must be in a spirit of love and kindness, for she is a tender flower—and we all shall part with her, though only for a little while, with pain and reluctance."

What the schoolmaster thus briefly stated was matter of great surprise to old Silver, who imagined, as was customary with him, when persons did not alight at his door from their carriage, that they were comparative paupers, and were therefore fitly treated with abrupt rudeness or coarse familiarity, just as on the other hand he would slavishly debase himself to any one with a title or a full purse. He was in this dilemma, and might have had some difficulty in reconciling his change of opinion with his previous conduct to the old schoolmaster, but for a touching appeal from his deeply-moved wife, who in her whole existence had never been less prosaic or unworldly than at that moment.

"William," she said, as rising and tottering to where he sat, she rested her clasped hand upon his shoulder, "we've been married two-and-thirty years, and in all that time I have striven to be a good and truthful wife to you. So for the sake of that, if even you won't forgive poor dead Anne, which you said upon your knees you never would, let me, let both of us, take her dear child and be good to it—for we have you know——"

"Mrs. Silver," coughed the curiosity dealer sternly, as he abruptly interrupted his wife at this precise moment, when she was about to say that he was rich, "any discussion of our private affairs is unnecessary; we will take your niece, and give her such protection as she may require, and in return she may be occasionally useful to us, though it is but right to say some small consideration for board and lodging will be needful. Hem! as Mr. Wood is perhaps aware, life in town and country are different things as to expense; therefore, it may be more satisfactory to all parties to name a small sum."

"No, William," said Mrs. Silver, indignantly, "if with all our money, you won't give a daily meal to your niece without payment, *I* will. Yes, if I leave you, and purposely work for it."

The curiosity dealer found that he had gone a step too far, so he replied quietly, though in that cynical tone which so jarred on all ears but those accustomed to it, "Have your own way, my dear,

have your own way. Only don't expect me to be particularly civil and loving, that's all. Ay! I missed those Rubens, and remember it. So now arrange matters with Mr. Wood as you please. I shall pay Lizzy here and go to bed, and leave your tears and tenderness free, my love." Thus speaking, he rose and went to his desk again, got out his cashbox and beckoned Lizzy to his side.

"Here's the money," he said, as he counted it out of the cash-box, and put it in her hand, "though five shillings short of the sum your father has got in the bill; I can't pay his price, it is more than any west-end tailor would charge."

"Please, Mr. Silver," was the reply, "I daren't take it home. My mother would scold me so, and perhaps flog me. She did so last time, and I daren't."

"She may well scold," were old Silver's words, as he thrust the remaining five shillings in the child's hand, and bid her sign the bill, "when your father chooses to harbour that old Italian, whether he pays rent or not, and makes it up by an overcharge on others. Ay! If I had such an old poverty-stricken creature in my house, I'd soon dismiss him, plaster-casts and all. For ugly, useless things, like a plaster Venus, or a clay god, are scarcely worth a farthing at the best. Marble and clay are two very different things."

"Guiseppe tells father very differently, sir," said the child, reddening at what she considered an insult to their poor lodger at home, and all those lovely shapes which filled his poor room, and which long habit and association had made so inexprossibly dear to her, "he says, no matter what the substance is, so the form is beautiful. He said so the other day when a poor boy came to buy a cast to draw from."

"Ha, ha, ha!" laughed old Silver, till the tears ran from his eyes, "as if I shouldn't find a difference if my china were delf, my lapis lazuli glass, or marble stone; so it's costly, so it's rare, that's the thing." And having delivered this his sovereign idea upon worth and art, Mr. Silver took up the before-mentioned small oil lamp and withdrew, when he had wished the school-master a civil good night, and giving his wife a hint that she must follow him for a few minutes into the shop or hall. This was to impress upon her mind, that as their niece had fifty pounds a year, it would be as well to secure a portion to themselves; but, true to her previous indignation on this subject, Mrs. Silver peremptorily refused, and reiterated her determination to make her niece the pride of her heart, and welcome to the best she could give.

As soon, therefore, as Lizzy was gone—and this not before the good old schoolmaster had taken down her address, and promised that if Alice came to London she should be her friend—Mrs. Silver and old Wood had a long and confidential conversation, during which Mrs. Silver not only repudiated all idea of gain, but made every arrrangement in the most generous manner for her niece's journey.

For the few days the old schoolmaster remained the Silvers' guest, he was treated very hospitably, and he left them with the full conviction, that, however worldly and common-place they were, old Silver especially, Alice would at least have kindly care and protection. He was right; and what was more, there were things of art and artistic beauty around, and poetry too, if Alice should have soul enough to read the profound poetry which lies hidden beneath the most prosaic lives.

It happened, fortunately for Mrs. Silver, that on the day after old Ralph's departure, her husband had to attend a sale of some days' duration in a distant part of England. He was, therefore, no sooner gone, than in conjunction with old Nancy, she began to put her several plans for her niece's worthy reception into force, and this to an extent which would have astounded old Silver, could he have conjectured this inroad on his purse. But Mrs. Silver's love for her sister had been a sincere thing, and her desire of atoning for the wrong she had done, still deeper and sincerer. Accordingly, from the very hour of old Ralph's first coming, her head had been filled with all sorts of thoughts, as to what she should do and buy for Alice, and many and profound were her consultations with old Nancy.

As already said, Dr. Falkland had occupied the first-floor in old Silver's house for many years, that is to say, whenever in town, as his permanent home was at a country-seat in Berkshire. But at the far end of this floor, and a step or so lower than it was, was a fair-sized room, used for lumber, and opening into the long warerooms, which occupied a considerable area at the back of the house. This was cleared out, whitewashed, papered, enriched with a new stove and mantelpiece, then carpetted with a pretty green carpet, some quaint furniture from the warerooms put in, as well as old china and other odds and ends, and when the door into the long wareroom stood open, with its vista of quaint shapes in porcelain, and bronze, and carved wood, there was a dimly-lighted, old fashioned, quaint look about it, which was the very thing in all the world for the artistic eye. True, Mrs. Silver and Nancy had not much taste in their art of adornment, and set out the little room as they would a china-closet or a store-room, still for all that, there was cleanliness, freshness, and capability, and the rest would be easy to one of soul and thought. Next, up stairs, adjoining her own room, was another, which was also newly papered and carpeted, and a new bed sent home, and a wardrobe, the drawers of which Mrs. Silver filled to over-flowing, and to her heart's content, as here her old husband could neither count the cost nor inspect her extravagance. In truth, these drawers were to Mrs. Silver and her maid, what a strong box is to a miser, for they were the depository of the large results of their most important confabulations.

A week had passed by, and the morning of the day came which was to bring Alice Law, when Mrs. Silver, much to her chagrin, received a letter from the curate's wife, who had previously written, to say that the child's journey had been unavoidably postponed a day, but that on the morrow evening she would, without fail, reach town. That morrow evening was to bring her husband! and when Mrs. Silver thought of this, and the necessity she should have to restrain her feelings before him, not so much from other causes, as the dread of his cynical humour, she sat down and cried heartily. But accident proved her best friend.

That following afternoon, when the old curiosity dealer took the train at Derby for London, he was placed in a second-class carriage, already occupied by two gentlemen and a young girl. She was dressed in mourning, and had a very sweet girlish face, which, as was evident, had already attracted the admiration of the other passengers, as much as it did now old Silver's gaze. But there was little of the child in her earnest reserved manner, which seemed more the result of an absence of self-consideration than of any other thing, or as if she had much within her heart to occupy her thoughts. She had several small baskets with her, some on the seat, and some beneath it, and these were filled with all kinds of weeds and lichens, marine algæ, rough stones and shells, of which she took immense care to guard from overthrow, though according to old Silver's contemplative opinion thereon, they were fitted for little more than to adorn the next roadside hillock. Yet for all this silly childish humour, as he thought, he could not but look upon her sweet young face, at least, he was attracted to it as much as his companions. Still the young girl was not talkative;—what she had to think of,—whatever it might be,—and the care of her oddly-filled baskets, seemed occupation enough.

It was dark when they arrived in town. Old Silver had his own precious commodities to look after, in the shape of boxes laden with plate and china, and, therefore, thought little more of the young girl, who for the time being had so interested his usually phlegmatic temper; but he saw her more than once amongst the crowd as if waiting for some one, and carefully standing guard over several other baskets and hampers, from which drooped long strips of ivy and leaves of plants.

When he got home, and his boxes were safe in the shop, he hurried into the parlour, and found the cloth very grandly laid for supper, but no one there. In a minute, however, Mrs. Silver appeared, in one of her smartest gowns and caps, hot from the kitchen, where she had been assisting Nancy with the supper.

"Well, my dear Susan," he said, complacently, for the sight of the supper cloth, especially on holiday occasions, always improved his humour, "where's our visitor? I thought to find her, and a room-full of childish litter by this time."

"She comes to-night," was Mrs. Silver's agitated answer, for she was in fear lest the old man's good humour should pass away, "and so as I thought *you* would like a nice supper, and I could not attend to it and go and meet the dear child in the bargain, our good old neighbour Johnson is gone, and I am expecting him back every minute." Mrs. Silver was politic in her conduct, and its effect was, that this rare burst of Silver sunshine had duration.

He was about to tell her, how it was probable that he had that day seen their niece, when old Johnson was heard to arrive, and in a few minutes he led in, in his old-fashioned manner, the young girl with whom the curiosity dealer had travelled that day. Now when he saw her face once more, his humour even brightened in its kindness, and Mrs. Silver, seeing her niece's likeness to her dead sister, hugged her in her arms, as she might a newborn infant, and cried outright with joy.

The Silvers made no secret of it either to friends or strangers that they were most willing protectors of their niece; for though she was so much more womanly than they expected, and her reserved and quiet, yet kind and gentle manner, was an enigma to them, they were proud of her beauty; and the old uncle, who never could be perfectly disinterested, either in word, act, or thought, began to consider that it was even politic to be kind, as she would be able to retouch a picture, hide with fresh tints any woeful fracture in a precious jar, or even paint some Holy Family or Italian Landscape that, with a little baking, smoke-drying, and varnish, would pass for a Correggio or a Claude. So far, therefore, from testifying surprise or displeasure when his wife in a day or two took courage and showed him the little room she had prepared for Alice, he commended her kindly thought; and going at once into the adjoining wareroom, brought from thence various things for further adornment, which Mrs. Silver in her wildest dreams and most daring mood would as soon have attempted to remove as the Monument or National Gallery. There was a dish of Majolica china painted like a cartoon, a cinerary urn from Tarquinii, and a Grecian bronze of almost priceless value.

In a week Alice seemed at home in her little study. Not a wish, however lightly expressed, but what her good old aunt strove to gratify, and in her room, her food, her clothes, scarcely a desire was left. Yet when some weeks had gone by, and she had arranged her small studio as she liked, planted in pots all the strips of greenery she had brought so far, or dried the rest, and entered upon her studies at the private academy which she had purposely come to town to attend, there were still moments when she could but feel the prosaic character of those she had to mingle with, and the utter want of sympathy between themselves and her. If they talked of art—and both the curiosity-dealer and his wife professed to know much about it in all its forms—it was the age and price of a picture or a vase, by whom last sold or purchased, or when and where. But not a thought had they about the painter or the potter, not a word about shape or grace or grandeur—nothing but length of years and amount of money price. All this had a depressing effect upon the young girl, and this the more, as even at the master's academy, where culture and some degree of enthusiasm might have been expected, gossip and commonplace talk was the rule without exception, and the only word about the picture on the easel or the sketch from life, was as to when it would be finished, or whether it was better than Miss So-and-so's. Thus was talent of a rare kind—for time had yet to test whether it were genius—met on the threshold of its aspirations by the old tribulation—want of recognition and sympathy. For Alice had manifested an early love of art, which had been cultivated by one of no common attainments, as Mrs. Fountains had been herself an admirable artist, an accomplishment which travel and the rare opportunity of seeing the grandest works of others had refined and greatly perfected. In all the associations, too, of her early life, the young girl had been fortunate; and though she had removed at her mother's death to her father's humbler home, his frank and manly character, and her constant companionship with him, under all the aspects which the seasons brought to the wild shore and moorland heights of their lovely neighbourhood, had nurtured and broadened out all that was best and original in her character. For though Law was no poet in an ordinary sense,—that is to say, a writer and stringer of verses,—he was one in soul. He loved the rough storm and the calm; the shore when swept by the foaming tide, or when dry and sparkling in the summer's sun; the moorlands when purple with the bloom of the heather, or shrouded with the rolling mists of winter; and when he came to learn his child's love for the pencil, and the beauty she saw in almost every outline and form, he would go miles to fetch her a rare plant or sea-weed, or after a night's hard duty in winter, he would turn forth again to show her some seaward aspect of storm and leaping waves. And latterly, when he had learnt from others the real worth of his child's beautiful gift, nothing so much delighted him as to sit by his winter's fire, whilst Alice practised her last drawing-lesson, or sketched some of the rude weather-beaten fishermen of the neighbourhood.

Used, therefore, to companionship with a character so genial as that of her father, and after his death to the warm and kindly attachment of Mr. and Mrs. Lesnor, and their humble friend old Ralph Wood, no wonder that the young girl soon found that nothing is more irksome, till use or the repose of mature life makes self-reliance more easy of acquirement, than daily existence without the sympathy of similar pursuits or congenial minds. Even the lovely art which was so dear to her, her little picturesque studio, and the old warerooms opening beyond, with their long vista of porcelain and carving and ancient furniture, could not always enchant, though they went far to do so.

At length one Sunday afternoon she come down from the little room in which she had been sitting a-while after dinner, into the old parlour, already spoken of, where her uncle sat asleep in his arm-chair, and her aunt at the table reading, as was her custom on Sunday afternoons, out of a large folio prayer-book. She put a marker in it and drew Alice to her knee.

"Aunt," said Alice in a whisper, after a minute or two's hesitation, "I have a favour to ask of you."

"What is it, my dear?" asked Mrs. Silver tenderly, for Alice was already the pride and joy of her heart. "Of course, you know I shan't refuse. Is it a dress like we saw at church this morning—or a new bonnet. You shall have both, my dear. We will go together and buy them to-morrow afternoon."

"No, aunt, no;" replied Alice, who could but smile that her aunt's idea of worldly needs always bore some relation to finery or the purse. "I want to see Lizzy Wilson. Dear old Ralph was so pleased with her—and talked of nothing so much as our being friends."

"Bless me, my dear," spoke Mrs. Silver, as she lifted up both her hands, "you surely don't know that Lizzy's father is only a little tailor; indeed, so very poor as to be always in trouble. And you, my dear, you know are a lady, with a nice income for one so young, of fifty pounds a year, to which by and by may be added what we have;" here Mrs. Silver dropped her voice, and drew her niece's face close to her own, "for your uncle *is* rich, though he don't like it known."

"But I don't care for riches, aunt," said Alice; with the quick enthusiasm of the generous, "and I'm sure, it doesn't matter Lizzy's being poor, if she is half as warm-hearted and full of observation as Ralph said she was."

"Well, my dear," replied Mrs. Silver, pettishly, "there is no accounting for people's taste, certainly, and as I refuse you nothing, we can walk as far as Wilson's-court, in Fetter-lane, after evening service, if you like. But for my part, I never had a taste for vulgar acquaintances."

"Nor have I, I think, aunt," added Alice with a quiet smile; "though I don't necessarily believe that because people are poor, or in a humble class of life, they are vulgar. As my father used often to say, the greatest secret we had yet to learn, was that of selecting out of any classes, friends and acquaintances, those whom nature had made good and noble. And Lizzy Wilson may be good."

"I think she is," said Mrs. Silver; "at least, she is patient, for her mother is a dreadful scold—always out of temper, always ailing, and always quarrelling with her husband and children. As our Nancy says, every body under Wilson's roof has a dog's life—from old Guiseppe, the lodger, down to the youngest child."

THE HIPPOPOTAMUS.



HIPPOPOTAMUS, AS SEEN WITH HIS NUBIAN KEEPER, IN THE GARDENS OF THE ROYAL ZOOLOGICAL SOCIETY, REGENT'S PARK.

On the 14th of November, 1849, an illustrious stranger arrived at Cairo. His journey down the Nile had occupied between five and six months, and his arrival was hailed with the greatest satisfaction by groups of admiring friends. The officer under whose guardianship the stranger had performed his journey, hastened to the palace of Abbas Pasha to report the arrival, and his Highness was no sooner made acquainted with the circumstance than with oriental formality he introduced the stranger to the British Consul, who received the introduction with the greatest possible delight, the illustrious stranger being none other than our fat friend the Hippopotamus.

He was not then much more than six months old; a huge,

barrel-bellied infant, the colour of his skin being of a dull reddish tone, not unlike, says one, that of a naked new born mouse. He had been captured far away up the dark mysterious Nile, and torn away from his home and country, was now on his way to England, to figure as an additional object of interest in the gardens of the Royal Zoological Society. His capture had not been effected without risk, and there is a touch of pathos about it to which we cannot help alluding. A large female hippopotamus, had been wounded, and was in full flight up the White Nile, about one thousand five hundred miles from Cairo; her pursuers were close upon her track, and bullet after bullet whizzed by the terrified animal, until at last a ball or two reached a mortal part and she paused. Maternal love made her stop, she fled no more, she turned aside and made towards a heap of brushwood and water-bushes that grew on the banks of the river, and she sought that spot either to struggle for her life or die beside her young one. She could not reach that spot; her strength failed; she was unable to proceed so far, and sank dying beneath the water; but the action was so evident that her persuers noticed it, and hastily proceeding to the clump, they beat the bushes, and out rushed the young hippopotamus calf, plunging headlong down the river's bank. He would undoubtedly have made clear off, if a dexterous boatman had not thrust out his boat-hook, and with one blow have buried the hook in our fat friend's flank. This secured him, and he was hauled on board.

His progress from the White Nile to Cairo was a work of difficulty to his captors. The young suckling objected to the food they offered him, and to obtain milk was a hard and laborious task. They managed it, however; and, by the way, what is there they cannot manage in despotic lands, where the pleasing alternative of the bowstring or obedience, compliance or the bastinado, are the rules of the day? Well, they siezed upon the cows from sundry villages at which they stopped, and milked them dry, and so with their unweaned prodigy cried "Hey for Cairo."

Our British Consul had made every preparation for receiving his illustrious visitor. A commodious apartment had been constructed, with a door leading out into a bath, and here the extraordinary traveller was lodged. But this was only his temporary residence. His next journey took him to Alexandria. There the Ripon steamer had been fitted up for his reception. There was a house on the main deck, from which a flight of steps led down to the tank in the hold, a tank containing four hundred gallons of water. Our hippopotamus departed from Grand Cairo in a cart nicely padded, and on his arrival at Alexandria, thousands of people thronged the streets to see him pass, and, surrounded by a military escort, which the crowd rendered necessary, he embarked on board the good ship Ripon, in the port of Alexandria.

Need we tell the story of his voyage—how he slept side by side with his keeper Hamet, (our Nubian friend of the gardens), and how, when Hamet, preferring the ordinary hammock, had one swung above his charge's head, how that interesting charge did with his broad nose raise the heaviest part of the hammock and pitched poor Hamet clean out of his snug bed; or how he enjoyed himself during his voyage; how he liked his bath, for which no lack of fresh water was supplied; how his provisions were satisfactory—two cows and ten goats having been taken on board for his sole use and service; suffice it, that he safely arrived at Southampton, was hoisted up the vessel's yard-arm, lowered upon a great iron truck, and wheeled off to the railway station, there being deposited in the special carriage of a special train, he travelled up to London, and arrived at the Regent's Park Zoological Gardens at ten o'clock at night.

And there he is still, as our artist has represented him. Cool, solemn, sedate—an illustrious stranger, a fat friend, an aquatic pig, a unique monster, and an infant prodigy.

The hippopotamus is a quadruped as large, and not less formidable than the rhinoceros. Whether there are more than one species of this genus appears uncertain; for there is every reason to apprehend that the morse has sometimes been confounded by travellers with the hippopotamus. Sonnini's observations seem in favour of the existence of more than one kind; yet his conclusions are not apparently founded on any better authority than the discordance of naturalists. Those who apprehend that there are two species, consider one as an inhabitant of the fresh water, or rather of inland lakes, rivers and marshes; and the other to be entirely confined to the sea. The latter, therefore, is probably morse.

The hippopotamus has four cutting teeth in each jaw; those in the lower jaw straight and pointing forward, almost horizontally, the two middle ones being the longest. He has four tusks, those in the upper jaw short, and in the lower very long. They are so strong and hard that they will strike fire with steel. They are sometimes two feet in length, and weigh upwards of six pounds each. Indeed, the armament of teeth in his mouth is truly formidable; dentists prefer them for making false teeth to other kind of ivory, as they are less liable to turn yellow. Our fat friend has not yet obtained his tusks.

The full size of the animal is very great. The length of a male hippopotamus has been known to be seventeen feet, the height seven, and the circumference fifteen. The head three feet and a half, and the girth nine: the mouth about two feet wide; the ears small and pointed; lined very thickly within with fine short hairs; the eyes and nostrils small, the lips very thick, broad and beset with a few short tufts of short bristles. The whole surface of the body is covered with short hair, very thin on the under parts, the tail is short, not exceeding a foot in length, strongly compressed and almost naked, and marked by several strong circular wrinkles; the feet are large, being divided into four parts, each being furnished with a hoof; but, notwithstanding the animal is amphibious, they are unconnected by any membrane or web. The hide is even thicker than that of the rhinoceros, and of a dusky colour, but penetrable by a musket shot. The hide alone, it is said, is a sufficient load for a camel.

Our friend at the gardens will not, they say, have arrived at maturity for twelve or thirteen years to come, so that the prospect of his eventual size is positively alarming, if the words of our naturalists are to be relied on.

The hippopotami inhabit the warmer parts of the world. Formerly they abounded near the Cape, but are now nearly extirpated. By old writers these animals are described as possessing the most astonishing powers of strength; they even feign that they vomited fire. The old Egyptians regarded the animal as a deity, they paid it sacred honours, and engraved its image on their obelisks. Yet, according to Diodorus Siculus, they would sometimes attack their god, and wage war with the object of their adoration, attacking it with spears and daggers, and after inflicting many desperate wounds, leave the poor animal to expire from loss of blood. And it was not alone the Egyptians, who believed that in the hippopotami they recognised a god, the negroes of Congo, Angola, Elmina, and other adjacent parts of Africa, at this day regard the animal as a deity, yet they not only attack and destroy it, but devour its flesh with great avidity:—

> "Such savoury deities must needs be good
> That serve at once for worship and for food."

Pliny relates that in one of the public feasts at Rome, five crocodiles and one hippopotamus were exhibited before the Romans in a temporary lake. Augustus also produced one on his triumph over Cleopatra; and after this the figure of the hippopotamus appears on various medals of the Roman emperors; yet for many ages no authentic history of the animal was obtained; some commentators, with Calmet and Bochart at their head, suppose that Job intended the hippopotamus by the Behemoth. Aristotle represents the hippopotamus to be of the size of an ass; Herodotus affirms that in stature he is equal to the largest ox; Diodorus makes his height not less than five cubits, or above seven feet and a half, and Tacitus calls him, on account of his prodigious strength, the Egyptian elephant.

The great strength of the creature would render it one of the most formidable of terrestrial quadrupeds, were its disposition ferocious; but it is mild and gentle, except under circumstances of great irritation, and then its power is to be dreaded. The manners of the hippopotamus approach nearer to those of the hog than of the horse, with which its name implies an affinity; for which reason Alpin calls them Choropotami, or river hogs. They commonly sleep in the reedy islands in the middle of rivers, and, if possible, in situations surrounded by thick forests and deep impenetrable marshes.

IFE ASSURANCE.—GOVERNMENT INSPECTION.

HE progress of Life Assurance of late years, is one of the most markable and suggestive phenomena of our civilisation. To ovide for the future—to lay by a store for the day of adversity, s always been the dictate of wisdom, in every stage of social ogress. And beyond this, there is a good instinct in the human art which prompts a man, not only to labour for the trans-ission of his name to posterity, in connexion with property and local habitation, but also to secure for his children a competence, at least, so much as will set them on their feet to pursue a reer of their own. It may be questioned whether a good educa-on, virtuous principles, and the spirit of self-reliance be not the st provision a man can make for his children. But as he may t live to accomplish this, it becomes a matter of the utmost portance that they should be at least guarded against destitu-on, if he who is their support be prematurely taken away by ath. Investment in lands or houses, or in a safe business, is to any more agreeable than life assurance. But in our highly tificial, intensely commercial, competitive and overcrowded ate of society, this offers the easiest method of providing against e casualties of life, and freeing a premature death-bed from uch of its anxiety regarding those who are called on to mourn e loss of a father. Consequently assurance offices have multi-ied greatly in recent times, and the business of the old offices is creasing daily.

At the end of 1851, there were 152 life assurance offices, doing siness in Great Britain. Since the Joint Stock Companies' Act as passed in 1844, there were projected 241 new companies, unded 131, while 78 ceased to exist, and six wound up their fairs in Chancery. Mr. Samuel Brown, a talented actuary, timates that the amount assured in the life assurance offices of reat Britain is upwards of 150 millions sterling, yielding annual emiums to the amount of five millions. Of this vast sum 34,000,000 is to be set down to the account of Scotland. In that untry there are fifteen assurance companies doing general busi-ss, which possess realised funds to the extent of between six and ven million pounds sterling. This is the estimate of Mr. Wm. hos. Thompson, manager of the Standard and Colonial Compa-es, and one of the vice-presidents of the Institute of Actuaries. a letter just published, and addressed to the President of the ard of Trade, he says, "the yearly business of these companies advancing rapidly, and their new contracts during the past year e estimated at between three and a half and four million unds sterling."

In order to enable the reader to realise in his mind the magni-de of these transactions, he compares them with those of the ottish banks, the whole of whose liabilities amount to 39,338,295, while the total liabilities of the Scotch assurance mpanies amount to £34,000,000. In fact the obligations of ese companies aloue (though only about 1-5th of the whole) ual the amount of "notes issued," by the Bank of England, ter deducting the amount in the "banking department"—the *tual circulation* of notes, including bank post bills, being 25,103,760. "The assurance contracts, therefore," says Mr. hompson, "of Scotch offices are, in the hands of the public (in reulation it may be said), to a much greater extent than the tes of the Bank of England,—the bank notes being at the me time convertible on demand, while the assurance obliga-ns are not to be fulfilled for indefinite periods, stretching over long series of years." If we take into account the English mpanies, this disproportion of liabilities as compared with e banks, is swelled enormously on the part of the assurance fices.

Now let us see how they stand, in the important matter of sets to meet these liabilities. The banks, it is well known, must ve assets sufficient to pay off all their notes on demand. The otch assurance offices have not more than seven millions to ect 34 millions. For the rest they rely on sums to be received the shape of premiums, to meet, with accumulated interest, e obligations undertaken. One company in London reports, at it has issued 1,369 policies, insuriug £1,303,708 on col-ges, chapels, and school-rooms, belonging to various bodies dissenters, and 935, covering £277,436, on the residences and furniture of their ministers. Besides this, £155,000 have been assured on the lives of ministers. These sums make £1,736,144, for which this company is liable, in one department alone; whereas the assets of the company at the close of 1851 were only £176,309,000.

We take this case because we believe the company to be one of the best and safest of these establishments. We have no doubt that its assets and those of other respectable companies will be always able to meet the demands upon them. But when we re-collect that since the Act of 1844, no less than 75 new offices have been opened, about half the total number in Great Britain, it is impossible to avoid asking, with some anxiety, the question, whether the public have all the security they should have that in every case, the savings of a life, paid into those offices, will be available when demanded?

Professor de Morgan, fifteen years ago, demonstrated that a Life Assurance Institution may be pursuing a ruinous career, and yet its unsoundness may not be capable of detection by the public till towards the expiration of forty or fifty years. Mr. Robert Christie, Manager of "the Scottish Equitable Life Assurance Society," expresses his conviction, that there are associations, which, notwithstanding their flaming reports, are in effect, though perhaps not in design, fraudulent. He adds—"It is a lamentable truth that a great proportion of persons assuring are quite ignorant on the subject, and make little or no inquiry into the responsibility of the institutions to which they resort for investment of their annual savings. They are thus open to the solicitations, and too often the unscrupulous representations of parties who have a strong interest in leading them to an office of doubtful character. It is enough for many people, who, in other respects, are prudent and sensible, if they can obtain a policy of assurance at the low rate of premium, or if they can purchase an annuity at a low price."

To the same effect is the testimony of Mr. Thomson, who, in the pamphlet already quoted, says—"An Assurance office, managed by fraudulent persons, might be so conducted, the receipts for new business meeting the claims of old—that the discovery of bankruptcy might not be made till every farthing was *gradually* expended. This is an improbable case, but not an impossible one. I state it strongly, to illustrate further how widely insurance offices differ from banks in regard to the fulfilment of their contracts."

In addition to the possibility of bankruptcy entailing ruin upon families in the middle classes, like that which came upon the poor depositors in certain savings' banks, there is the uncertainty arising out of the liability of policies to be *disputed*. A man insures his life, and gives all the satisfaction as to age, health, and other circumstances which the company demands. He goes on, then, with the utmost confidence, paying with great self-denial all he can save for the benefit of his family when he is taken away. He dies. The office is applied to for the sum assured. Then, and not till then, when the principal party, and other important witnesses are gone, an investigation takes place, in order to detect some fraud or irregularity in relation to the policy; and if a doctor or a clergyman, or any other person, over whom the assurer had no control, should have committed any *mistake*, the policy is forfeited, the money is refused, and lapses to the company. All the time that they were receiving the hard-earnings of the departed father of a now destitute family, there was no inquiry; it is only when the company is called upon to meet its obligations that scruples arise. A necessary reform in these bodies, then, is that their policies should be all made *absolutely indisputable*. Once a policy is issued, there should never more be any question about its validity; and if there should be any, it is cruel to raise it at the moment when all the hopes of a bereaved family hang upon it.

We think that Mr. Thomson, Mr. Christie, and others, have come to a right conclusion, in demanding of the Government "to originate some measure for watching the progress of institutions undertaking such weighty responsibilities," and on whose stability and integrity such a vast amount of property has been risked. Security of property of every kind is the first condition of good government and of social prosperity; and if any kind of property should be regarded by the legislature as more sacred than another,

it is that deposited in assurance offices and savings' banks. Protection for the savings of industry and frugality is one of the most imperative duties of a government.

Mr. Thomson's suggestions regarding Assurance Societies are as follows :—

1. That the balance-sheets of all Life Assurance Companies in Great Britain be annually recorded in a set form, not for the purpose of being made public, but for the use of the Government and their Auditor. That periodical balance-sheets having reference to valuations or investigations be also recorded at certain intervals, in such form and with such explanation as shall be satisfactory to the Auditor, and that these be open to the public.
2. That all existing Offices be required to place a certain limited sum in the Government funds in the name of the Registrar.
3. That before any new Society be registered such a sum be invested.
4. That a thoroughly practical and judicious professional actua *unconnected with any Assurance Office*, be appointed as Au tor in conjunction with the Registrar, with power to se for persons and documents, and who shall be in close co munication with the Board of Trade.
5. That the Board of Trade, after a report from the Registrar a Auditor, and such further procedure as may be thou necessary, be empowered to suspend the operations of a Society whose management is disreputable or tending insolvency.
6. That the Joint-Stock Companies Act be revised with refere to Assurance Companies, or that a special Act be passed their guidance.

BOATS.



BALSAS.

The history of boats would form a curious book,—describing them from the earliest attempts made by that first of navigators, who is represented as having committed his frail bark to the treacherous sea, not without having his breast previously girt with a casing of oak and threefold brass. This sort of apparel would, we imagine, be anything but suitable for a man devoted to marine pursuits in the present day; but with this we have nothing to do. What navigation must have been in the earliest times, we can readily judge from the canoes of savages in our own time; and, strange to say, the rudest of their naval structures is fully, if not quite, equal to the best life-boat which we have yet invented, for all the purposes of shore-sailing in rough weather. We present our readers with engravings of two very curious kinds of boat used by the semi-civilised natives of South America.

The ports along the western coast of South America, between Valparaiso and Lima, are generally called *intermedias*. Some them have a look of barrenness and desolation that at once rep the traveller, unless absolute necessity obliges him to rema Vegetation of any sort is in some instances a thing unknown, a the poor and attenuated inhabitants place almost the same val upon a drop of fresh water as upon a vein of gold. Cobeja, t only point at which the republic of Bolivia touches upon t Pacific Ocean, and Iquiqua and Jaluy, commercial ports whi supply the interior of Peru, have no better horizon than on o side the vast ocean, and on the other the gray chain of the And behind which stretches a vast desert.

The difficulties lying in the way of communication with fert districts necessarily make fishing the resource upon which t population have to rely for a livelihood; but as net-fishi renders it necessary to employ boats, and as the country is total

wanting in wood, the primitive constructions, called *balsas*, of which we give an engraving, are those most in vogue. They are composed of two boats of the same size and shape, each made of sealskins strongly sewn together, and inflated through an aperture, which is then tied up to prevent the escape of the air. Each has then the appearance of a rude cone, terminating in points at the extremities. The two boats are drawn closely together at one and so as to pass through the water more easily. A sort of triangular deck is then formed on the top, composed of laths of wood and skins or coarse mats, upon which they place their nets or bales of merchandise. It is sufficiently large to afford sitting room for three persons. The Indian who acts as conductor sits at the vertex of the triangle, wielding a paddle with two blades, with which he strikes the water right and left, and each time imparts a rapid impulse to the boat in a contrary direction. These balsas, so frail in appearance, are nevertheless able to support a considerable weight, and are employed to very good purpose in the transport



CAVALLITO, OR STRAW BOAT, USED UPON THE COAST OF PERU.

goods, their small draught of water permitting them to pass through the surf without difficulty, and their weight is so trifling that a man can easily carry one on his shoulder. This use of inflated skins has been known from the earliest ages of the world, and was often employed to transport armies across rivers. It was very common amongst the ancient Celts of these islands.

Another kind of boat common in Peru, particularly in the neighbourhood of Truxillo, is the *cavallito*, or little horse; so called, because of its form, and of the necessity which sometimes exists for riding astride, and clinging very closely as well. The sea around this coast is generally rough, and would swamp any other boats, while these ride in safety through the surf. The cavallito is constructed of the *totora*, which grows in abundance on the banks of freshwater lakes and rivers, and possesses many of the properties of cork.

So also on the coast of Coromandel, they use a sort of small boat called *massoula*, made of bark, which glides on the surface of the waves, and bends without breaking under their pressure. At Senegal, all along the coast of Guinea, between the mouths of the Gambia and the Senegal, where the surf beats on the shore with terrific violence, Europeans disembark from their ships upon little rafts, which, from their great flexibility are enabled to ride over the breakers without difficulty. The natives of the Polynesian islands make use of boats, or rather rafts, equally frail, for passing from one point to another across the coral reefs with which the Pacific abounds.

On the coast of Madras passengers are landed through the surf in a curious manner. "Just as we were going to cast anchor," says a traveller, "two catamarans appeared suddenly on the deck. They were entirely naked, with the exception of a narrow strip of cloth around the loins, and a hat made of palm-leaves, in which they carry the letters. They were two leagues, at least, from the shore, and yet they made the passage upon two or three pieces of wood loosely fastened together, by the aid of a single oar, braving the surf with indifference, although it extends at least a mile and a half from the beach, and beating time with the paddle to a sort of song. With these frail structures they often venture out great distances to sea."

The navigator who first mentions these catamarans, made the following entry in his log: "At one o'clock in the afternoon, when off the principal town of Coromandel (Madras), saw two devils beating the surface of the sea with sticks. God grant that this may not prove a bad omen!" Coming nearer home, many of our readers have doubtless this year made themselves acquainted with the Irish *corraghs*, or boats of wicker-work covered with skins, with which the peasantry of Connemara transport themselves and their cattle from the mainlands to the islands on the western coast, during the summer months.

A VISIT TO THE CLOCK FACTORY OF MESSRS. JOHN MOORE AND SONS,

CLERKENWELL-CLOSE, LONDON.

London abounds with workshops and factories, of which the general public know but little. Nor is this fact to be wondered at, seeing that for the most observant visitor the streets afford an inexhaustible fund of entertainment and instruction. In the back settlements and out-of-the-way places all over the metropolis are to be found, however, sights which will well repay the trouble of a visit. We most of us have a vague, indefinite idea of the greatness of London, and a notion that, some time or other, we will really take the trouble to examine into its wonders for ourselves. But after we have made our said selves acquainted with the principal lines of road, and have become familiar with the exterior of the public buildings, with perhaps, a kind of come-and-go knowledge of the churches, theatres, picture-galleries, and museums, we put off the resolution of making a further discovery of London's "mysteries" till a more convenient opportunity, which with many never comes. Notwithstanding this kind of apathy, however,—which arises principally from "the pressure of business," and the apparently hopeless task of mastering all that is worthy observation,—the public are always willing to take descriptions at second-hand. And thus we, whose business it is to provide for the amusement and delectation of the reading public, find ourselves, every now and then, with a manufactory waiting to be described, an invention tired of non-appreciation and public approval, or a discovery undiscovered, except to the initiated few, whose activity and love of science lead them to seek information in recondite sources. In the endeavour, also, to keep alive the interest which the public cannot but feel in these "manufacturing sketches," we are sometimes sorely puzzled; and, what with the claims of gutta-percha, flint-glass, soap, floor-cloth, and clocks to priority of notice, our editorial patience is somewhat sorely tested.

As our purpose, in this visit to Messrs. Moore's Clock Factory, is rather to give the reader an idea of the *modus operandi* of the manufacture of a clock, than to trace the successive steps by which the manufacture has risen from the rude machinery of De Wick and Gerbert to the exquisitely finished machines at present in use, we shall, perhaps, better forward that purpose by introducing ourselves at once to

THE FACTORY.

There is nothing very imposing about the appearance of London workshops in general; and few persons would feel much interest in going over a Clock Factory, unless they were accompanied by so obliging and intelligent a guide as the Mr. Moore who received us on our late visit. It must be premised that the firm of Messrs. Moore and Sons — which consists now, we believe, of the brothers, Benjamin R., and Josiah—is one of the oldest of the kind in London, having been established more than a century ago. Situated in the very heart of the London watch and clock trade, and being distinguished for the excellence and superior finish of their work, it is no wonder that we find cathedral, church, and turret clocks of their manufacture all over the world. In 1814 they manufactured an eight-day church clock, with three dials, each six feet in diameter, and having a peal of six bells, for his Grace the Duke of Athol, which clock has ever since called the good people of Dunkeld cathedral to their duty on Sundays; the large eight-day quarter clock of York Minster cathedral, was erected by them in 1840,—and it is considered a masterpiece of correct workmanship, and is made to strike the hours on a bell of 53 cwt., and to repeat the quarters on two bells of proportionate size; and at the present moment they are erecting a large turret clock for India, which is to be filled with bells from the foundry of Messrs. Mears, of Whitechapel, whose establishment we shall shortly have occasion to describe. During the long course of years in which the Messrs. Moore have been in business, they have made not fewer than five hundred public clocks, besides upwards of thirteen thousand two hundred house clocks of various descriptions. Besides their immediate business, however, of clock makers, they are extensive manufacturers of all kinds of wheel-machinery, and have lately added to their oth avocations that of the manufacture of the "Patent Lever Vent lator," shown at the Exhibition in Hyde Park, and a descriptic of which will be found in No. 14 of our first series. In selectin therefore, this factory before that of any other of the kind London, we have been guided by the evident importance of t manufacture and the well-known character of the firm. Havi shown our credentials, then, we—that is to say, the artist a author,—proceed to make our first examination of the premis First, we enter the

SHOW ROOM,

where, upon stands, and counters, and brackets, and upon t floor, and depending from the walls, are clocks of every kind- in what, at first sight, appears to be endless variety: clocks f parlour, kitchen, hall, and library; clocks for ships' cabi railway stations, school-rooms, and churches; the splend enamelled eight-day chiming skeleton clock, shown by the fi at the Great Exhibition of all Nations, on a carved stand of i own, and protected from dust and impertinent fingers by a lar glass globe; the handsome emblematic gilt bronzed clock, i tended for the American Exhibition of 1853, is quite dazzling its infinite variety of scroll and figure work, and standing o from among the rest like a light in the room—of which we ha been favoured with the engraving inserted at p. 252,—clock plain and business like, in sober black marble and ebony; a clocks, bright and beautiful enough to have decorated the pala of Aladdin, had he wished to have been reminded of the flight time, which most likely he did not.

After having examined these, we proceed next to

THE SMITH'S SHOP,

where are prepared, in the usual way, by forge and hammer, t various parts of the larger clocks which are not brought read made to the establishment in the form called "castings." Th is little here which attracts much attention. A glance at t engraving will convey a better idea of the appearance of the pl than could any words of ours—inasmuch, as in this respect, well as in many others, the pencil of the draftsman is m graphic than the pen of the writer. We just pause an insta therefore, to notice the arrangements for ventilation, common this and to all the other rooms, and stepping through a doorw find ourselves in another "shop," in front of the large

WHEEL-DIVIDING AND CUTTING MACHINE.

This most important instrument is one of the improvements wh science has brought to bear upon arts and manufactures. I said to have been invented by Dr. Hooke in the reign of Char the Second. Now, as the value of a watch or clock depe entirely on the accuracy with which one wheel interlocks a frees itself from another, the importance of having the teeth of wheels so nicely adjusted as to prevent all chance of error, fr too much friction or otherwise, will be at once apparent. T wheel-cutting and dividing machine—as improved by Hindl about the year 1786, consists of two essential parts or principle one for dividing or regulating the distance upon the plate, another for cutting the teeth. Messrs. Moore have two machi of this kind at their factory—one for the wheels of church other large clocks, and another for the smaller and finer desc tions of wheels; but as the principle of each is identically same, a description of the larger one shown in the engraving serve for both.

A horizontal rod or bar is made to rotate on its axis with g rapidity; and at one part of its surface is fixed either a wheel a small sharp piece of steel, corresponding in shape to the te about to be cut in the brass wheel. This wheel is fixed horiz tally on a stand at such a distance from the cutter that the la can just reach it in the course of its rotation. The amaz rapidity with which the cutter rotates enables it to cut thro the brass with great ease, the pressure or contact being regul by a lever, which the workman moves with his right h

Cutters of various shapes and sizes, but all made of hardened steel, are provided for the cutting of different kinds of teeth. When one tooth is cut, the workman shifts the wheel round a little, to present a new portion of the circumference to the action of the cutter, only one tooth being cut at a time. The extent of this shifting is managed thus:—A brass plate lying horizontally on the bed of the engine, is marked with a great number of concentric circles, each of which is divided into a number of precisely equal parts, the number being different in the different circles. One circle for instance is divided into 48 parts, another 64, a third 72, and so on, as may be found most advantageous. If a wheel is to have any number, say sixty-four teeth in its circumference, a lever is so adjusted that a sharp point attached to the end of the lever will drop into all these holes in succession as the plates revolves. The revolution of the wheel which is to be cut causes also that of the divided plate, and the workman knows, by the dropping of the sharp point into one of the little holes, when he has shifted round the wheel to a sufficient distance.

No one who has not closely attended to the matter can conceive the difficulty which has been experienced in thus dividing circles into any number of rigorously equal parts. All the resources of art shown by Ramsden, Troughton, and other eminent mathematical instrument makers, have been required in the division of circles for astronomical instruments; and although such strict accuracy is not required in common clock and watch wheel work, yet the amount of skill required and shewn therein is sufficiently striking.

Whether the teeth be cut in brass, in gun-metal, in iron, or in steel, whether they are in the wheel itself or in the pinion, and whatever their shape may be, the cutting is effected nearly in the same way, and is succeeded by various finishing and polishing processes, requisite for the accuracy of the wheel's motion. A few dividing plates is sufficient to cut any number of teeth in a wheel; and by an arrangement of the scale, any number of teeth which is not on the plate may be produced by this machine. Messrs. Moore manufacture all the wheels required in their clocks, the rough cast plates as they come from the foundry in the north, being transformed by skill and labour into wheels of such nicety by the action of the smaller machine as to require nothing more than polishing to fit them for use.

Having made ourselves—the artist and author,—and it is to be hoped the reader also—somewhat acquainted with the action of the wheel-cutting and dividing machine, we proceed up a flight of stairs to

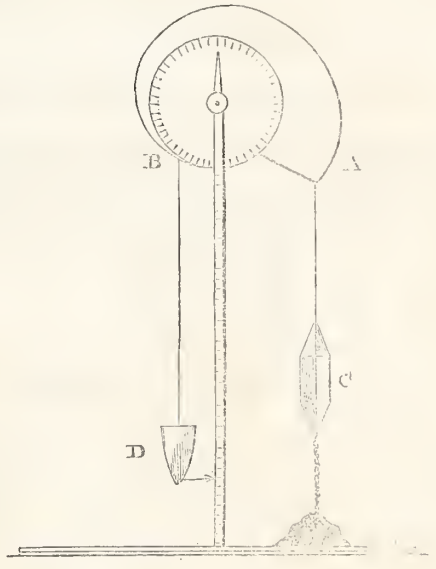
THE CHURCH AND TURRET CLOCK SHOP,

where are prepared and fitted up those large horological instruments in the manufacture of which this firm are principally engaged. It is a busy scene, and at the moment of our entrance various workmen are engaged in fitting up on its iron stand a large clock for a church in Calcutta. To this clock will be attached a set of chimes, and the hour will be struck upon the large bell exhibited by Messrs. Mears in the Great Exhibition. We will not stop here to describe the method by which a church or turret clock is made to perform correctly, but proceed to the floor above, where we enter a large room known as

THE MUSICAL AND HOUSE CLOCK SHOP.

In the engraving it will be seen that there are numerous benches, with each a vice, &c., affixed, ranged along the sides and centre of this large apartment. At the time of our visit each bench had its occupant; and a curious sight it was to observe the silent workmen filing, fitting, measuring, and adjusting the various wheels, pinions, and movements which are soon to become perfect clocks. For the convenience, however, of the artist, and that the aspect of the room may be better shown, this workshop is sketched without the workmen,—we will suppose them at dinner. Here in all states, from the crude germs in metal to the finished article bright in gold and enamel, may be seen those beautiful clocks so much prized, both abroad and at home, for their accuracy and elegance. An English clock and an English gentleman are said to be perfect specimens of regularity and finish.

As we have now made the tour of the factory, we may proceed to describe that as a whole, which could not very well be done in parts—namely, the construction of a church clock. We are most of us acquainted with the general principles of automata—of which the watch and clock are remarkable examples—how the efforts of a concealed spring to unwind itself turns the barrel and sets the wheel-work in motion—how the weight and pendulum act in a similar manner—and how sand or water, made to fall at regular intervals on certain parts of a machine, may cause the various mechanical phenomena which have at all times puzzled the unscientific. The *means* whereby a church or turret clock is made to record the passing hours, are however somewhat different from that of either a Dutch clock, which goes by a weight and pendulum, or a lever watch, which is moved by a spring—though the principle in all horological instruments is precisely the same. Professor Cowper, in a paper on clocks and chronometers, which he read lately at the Society of Arts, observed that Time is an abstract idea, which could be neither seen, nor heard, nor touched; that the only way in which a *measure* of such an intangible thing could be obtained, was by noticing what might be *done* in a certain interval; and that it is while the earth is turning once on its axis that we call the interval a day. Here, then, we get a definite idea; and in the course of his paper the Professor exhibited an instrument by which the measurement of time might be made apparent.

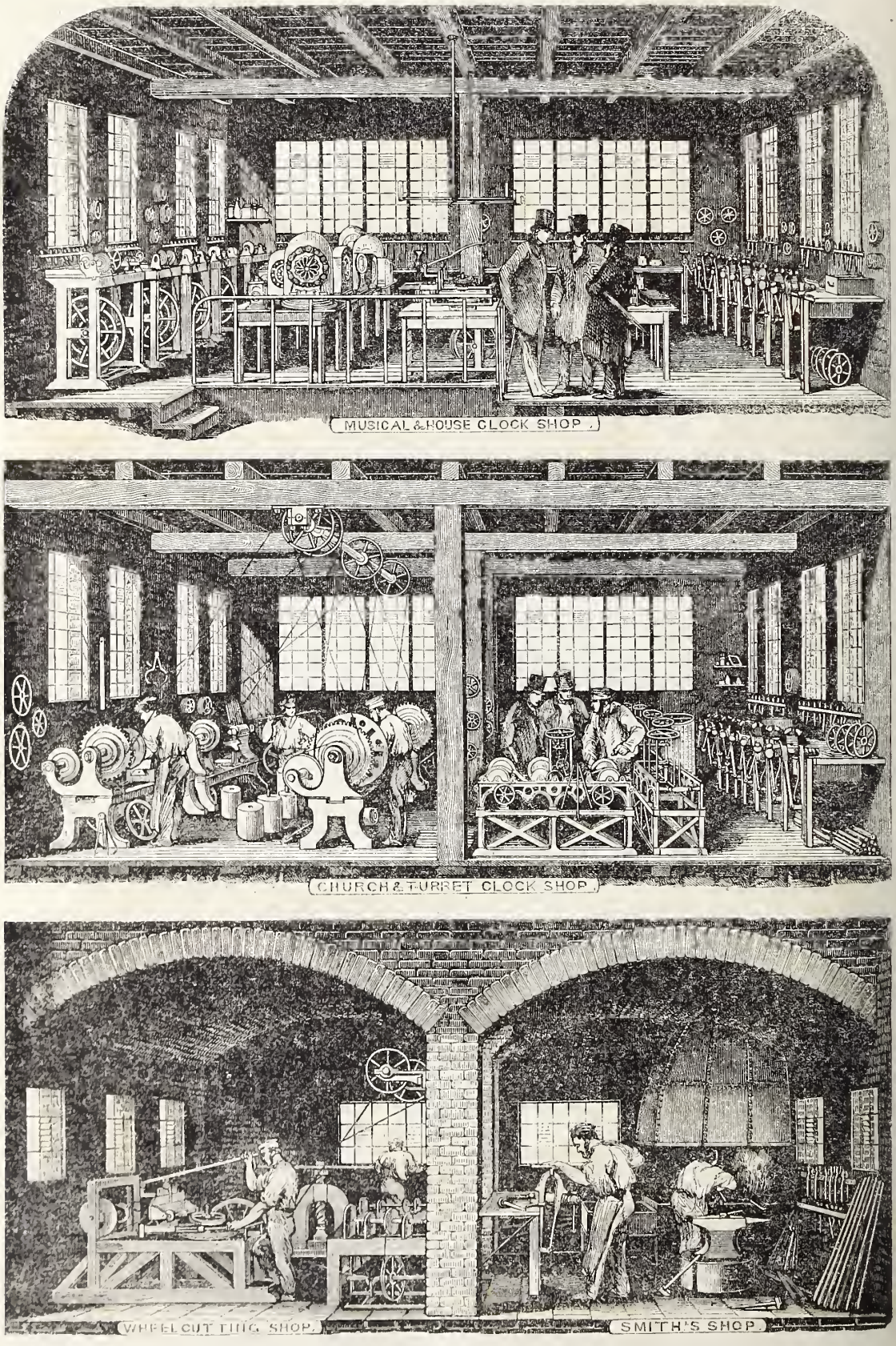


The above diagram shows this little instrument, which consists of a spiral pully A, and a circular pully B, on the same axis. To a cord over the spiral pully was hung the funnel C, containing sand, and to a cord over the circular pully was hung the weight D. The pulleys were supported on a stand, and the stand marked with inches, to which an index on the weight pointed; an index on the stand pointed to degrees marked on the circular pully. The operation of this ingenious little machine was this:—The funnel being filled with sand, raised the weight to the top of the stand, and *while* the sand ran out a certain interval of time elapsed. As the sand ran out the weight descended, and marked *inches* of time; the circle at top turned round and marked *degrees* of time; the sand from the funnel being measured, gave pints of time; and being weighed, gave ounces of time; so that by this, or a similar machine, the abstract idea of time can be converted into linear measure, angular measure, weight or capacity.

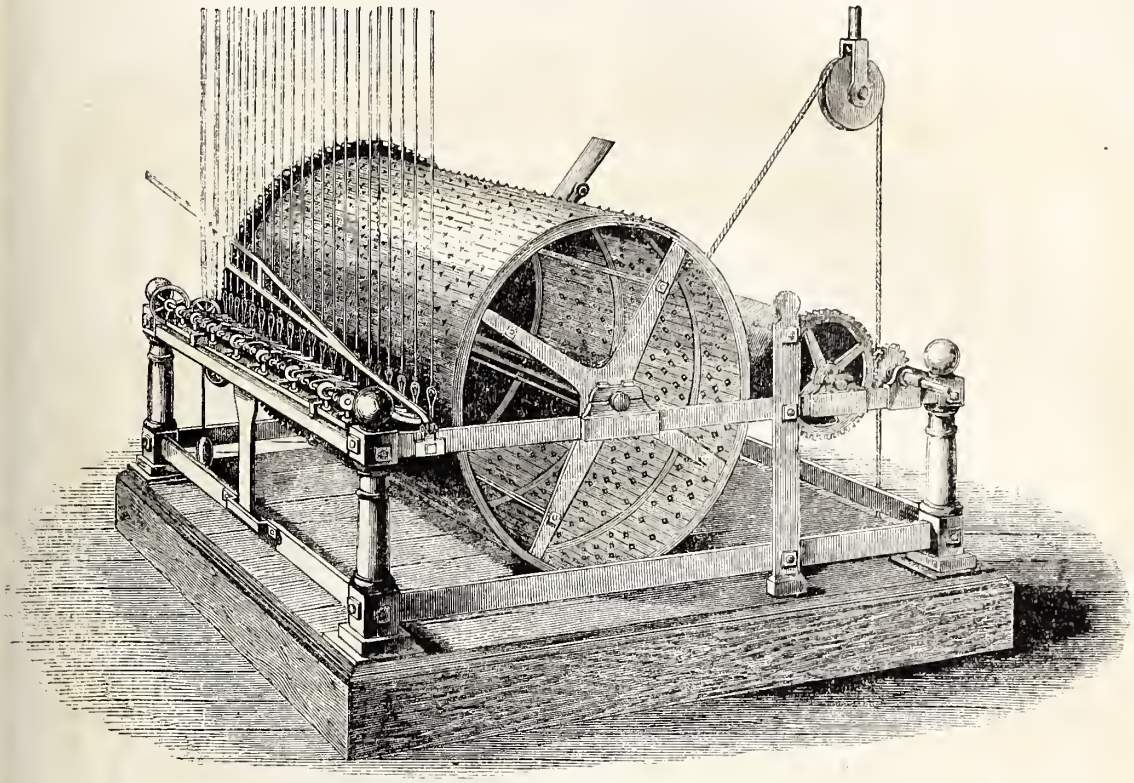
With just so much, then, of the principle of time-measuring, we may proceed to describe a turret clock; and for this purpose we make use of a communication which the Messrs. Moore have kindly placed at our disposal:—

Generally speaking, the framework of a church clock is made of iron, the principal wheels of brass, and some of the pinions and finer work of steel. The arrangements of the maker are therefore regulated according to the number and parts of the clock made at his factory. Whoever has seen a watchmaker at work must have

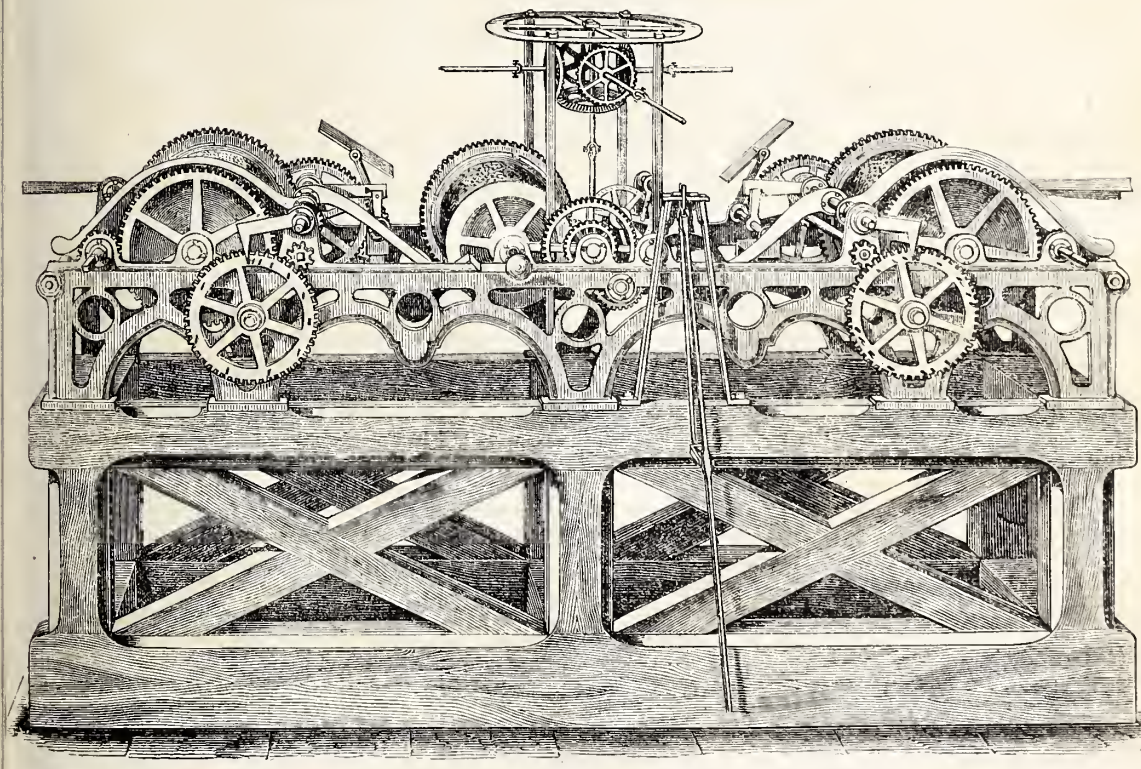
MESSRS. JOHN MOORE AND SONS' CLOCK FACTORY.



DRAWN BY SCHMITTHENNER; ENGRAVED BY H. C. MASON.



CHIMING MACHINE, AS FITTED TO THE CLOCK SHOWN BELOW.



PLAN OF THE TURRET CLOCK PROPOSED FOR THE ROYAL EXCHANGE BY MESSRS. MOORE AND SONS.

observed the extreme minuteness of his tools and working apparatus; but such a person is not, strictly speaking, a maker of watches; he only puts together, and adjusts and repairs the various parts which have been made by different bands. In the clock manufacture, and especially in church clocks, the subdivision of employment is not carried out to nearly so great an extent. At Messrs. Moore's factory almost every part of the mechanism of a church clock is made within the establishment, except the rough castings in iron aud brass. In the smith's shop all the forging and filing of arbors, bars, and other works of iron are effected, as well as the bardening of the finished pieces. In the wheel-cutting shop is carried on the beautiful operation by which teeth of wheels, that important department of all such manufactures as this, are cut. In the other shops noticed the general fashioning and adjustment of tbe numerous pieces which form a clock are effected, aided by various pieces of mechanism, such as lathes for turning brass, iron, and wood, drills, revolving machinery, polishing apparatus, &c. Without attending particularly to the classification which a clock-maker would lay down, we will separate a church clock and its mechanism into five parts;—1st, the moving power; 2nd, the movement, or going, wheels; 3rd, the regulation, or pendulum, arrangements; 4th, the indication, or mechanism connected with the hands; and 5th, the striking machinery. Any attempt to follow the minute details of clockmaking would be quite out of the question.

First, then, the power. Every child knows that the old familiar clock, which has perhaps formed one of the household inmates as far back as he can remember, is "wound up" occasionally, not by turning any wheel or handle, but by elevating an iron weight to the height of the clock. Almost every child knows that the little pocket watch, whose tickings excite such astonishment in his mind, is wound up by means of a very small key; but there are many children of larger growth who are utterly at a loss to know what this winding-up means. The main body of a clock or watch consists of many wheels which work one into another, insomuch that, if one wheel moves, the others are drawn into motion by it. But there must be something to impart this motion in the first instance, and that is called the power. We know that if the pendulum of a clock be stopped, the clock is stopped at the same moment, and that the movement of the clock is renewed when the oscillations of the pendulum are renewed. Hence many persons may suppose that the pendulum is the source of the clock's motion. Again, there are stop-watches, in which, by moving a little pin, the watch may be made to stop; and then, by a contrary movement, the going of the watch may be renewed; thence the pin seems to be the source of motion. But both these suppositions are erroneous. In both these cases of stoppage the rotating wheelwork is checked by a small piece of mechanism, and the motion is renewed when the check is removed; but the production of the motion is a totally different affair. In a common pocket-watch, the key by which the winding-up is effected is placed on a small piece of mechanism called a "fusee," from which a chain extends to a brass box or barrel. This barrel contains a fine and highly-tempered steel spring, which becomes coiled up very tightly by the rotation of the "fusee" and the winding on it of the chain from the barrel. This tight coil is so different from the natural state of the spring, that the latter exerts a powerful pulling-force in its endeavours to regain its original position; and this force tends to make the barrel, in which it is fixed, rotate, because, by this means only can the original state of the spring be regained.

When once the barrel is made to rotate, the rotation can be communicated by toothed wheels, to other mechanism. Such is the source of power in pocket-watches, in chronometers, and in the dials which are now so much used in public buildings and large apartments.

In church clocks, turret clocks, and common house clocks, there is no such spring as that alluded to. There is a line or rope descending perpendicularly from a particular part of the wheel work, and having an iron weight suspended from its lower extremity. The iron appendage of course exerts a gravitating force in proportion to its weight, and descends gradually; but from its mode of attachment, it cannot do so without causing the rotation of the barrel; when the pendulum is stopped, either purposely or accidentally, a catch or detent falls into such a position as to prevent the rotation of the barrel; but this obstruction being removed, the barrel rotates so long as the weight descends, and this rotation is communicated by toothed wheels to other mechanism. When the weight descends to the floor, or when all the cord is unwound from the barrel, the clock must stop; but before this time arrives the machine is wound up by causing the barrel to rotate in an opposite direction, by which the cord becomes rewound upon it and the weight elevated.

In a house clock the weight is so small that the winding up is effected easily by pulling a small bandle, but in larger clocks the aid of a winch or windlass is required. The length of the cord is proportioned to the diameter of the barrel, and to the time which the clock is intended to go between each winding.

The next portion of a clock to be noticed, is the "movement," or the going train of wheels. The makers of clocks and watches apply the name of "movement" to the assemblage of wheels which are put in motion by the moving power. Technically those wheels which are connected immediately with the hands, with the pendulum, or with the striking machinery, are excluded from this group, but our purpose here is to say a few words respecting the wheel work generally.

Almost every wheel in a clock has teeth or notches cut in its circumference. Sometimes these teeth stand out radially from the edge, sometimes they are perpendicular to the plane of the wheel; sometimes they nearly resemble the teeth of a saw; but whatever be the varieties, a glance at the interior of a clock or watch will show that almost every one has these indentations in some form or other. This is one of the modes adopted in general mechanism, for communicating motion from one wheel to another; pulleys, straps, and bands being inconsistent with the minuteness of a clock or watch. In some cases, two adjoining wheels work into each other, the teeth of one interlocking in those of the other; but in other cases, a small number of teeth are cut in the pinion or axis of one wheel, which work in the teeth at the circumference of the other wheel; and, indeed, it is in this latter way that a difference of velocity is generally attained. If, for instance, a wheel with fifty teeth work into a pinion of ten teeth, the pinion will rotate five times as fast as the wheel, and thus become a source of higher velocity. The great point of attainment in the movements of a clock or watch is, that one particular wheel shall rotate exactly once in an hour; this being effected, the arrangement of the hour and minute hands becomes easily determined. The proportions of the teeth in all the wheels and pinions is therefore so fixed as to lead to this rate of movement.

The manufacture of the movement or going-train of a clock or watch consists, therefore, principally in the careful preparation of toothed wheels and pinions. These wheels are made sometimes of brass, and in others of gun-metal, while the pinions are of hardened steel.

The whole manufacture of the wheel, from the rude cast metal, is effected in the shops we have visited, as they are depicted in the engravings. There are lathes in these shops for giving to the wheels a perfectly true periphery, by means of sharp steel tools; various pieces of mechanism for shaping, smoothing, and polishing; and lastly, the very fine engine we have described under the name of the wheel-cutting and dividing machine.

The indication or mechanism connected with the hands may be thus briefly described:—The dial-plate, or rather face of a large church clock, is generally of wide dimensions, as a means of making its indications conspicuous from below. The arrangements of the mechanism connected with the hands may, perhaps, be best understood from the following description.

It will be seen in the engraving, that at the upper part of the clock shown is a horizontal wheel, which gives motion to four wheels at right angles to it. These four wheels are connected respectively with the four horizontal rods which proceed from the clock to the faces. Each of these rods rotates once in an hour, and communicates that rate of motion to the axis or pinion on which the minute hand is placed. Other wheel and pinion work so modifies this motion as to make another axis rotate once in twelve hours, and this latter is fixed on the hour hand. It will therefore be seen that the sole source of the movement of the

hands is the rotation of the iron rods which extend across the clock-room, and the mechanism of the clock sets these rods revolving.

Of the face itself we may observe, that in most instances it is made of copper, painted and gilt in a more or less ornamental manner, others are made of slate, and in some cases the face consists of a circular depression cut in the stone-work of the clock tower, with figures, either painted and gilt on the stone, or cut in relief. The making of the wheels and pinions connected with the clock face is the work of the same persons as those employed in the "movement" wheels, while the decorative parts devolve on the clock-face gilder. The dial-plates used for the smaller kind of clocks are very different from these; in some cases they are made of brass brought to a fine surface and silvered, with figures and inscriptions cut in metal by the clock engraver, while in other instances the face is made of sheet copper coated with enamel, and having figures and letters painted in enamel of a different colour, the work of the "dial-plate enameller," and the "enamel painter."

The regulation, or pendulum arrangements. We cannot perhaps better illustrate the use of these portion of a clock's mechanism than by asking the following question: Why does not a clock run down in a few hours, when so heavy a weight as 60 or 70 pounds is continually urging it? Such would be the case if there were no regulating machinery. In a common vertical pocket-watch, we see under a perforated cover a bright steel wheel rotating, or rather, vibrating horizontally; in a common clock we see, instead of this, a pendulum oscillating to and fro. The mechanism in the first case is known by the name of the escapement, and however different in appearance, the object is the same as that attained by the pendulum of a clock. A spring, with a given degree of tension, and a pendulum of a given length, each require a certain time for the performance of an oscillation; and this important law is made to regulate the wheel-work in a clock or watch. The steel wheel is called the "balance-wheel," and is governed by a fine spring lying beneath it; but we will here confine ourselves to the pendulum arrangements of a clock. All church clocks have a long wooden pendulum or staff, to the lower end of which a mass of iron is attached, say, for instance, the pendulum rod is about 13 or 14 feet long, and to the lower end of it attached a mass of cast iron, shaped like a double convex lens, and weighing about 200 pounds. This is suspended from the framework above, and acts in the following manner: as the wheels revolve, one part of the mechanism gives an impulse to the pendulum by which it is set in motion. As soon as that impulse has ceased, another urges the pendulum in the opposite direction, and thus the oscillations are produced. But as the pendulum, from the law which governs its movements, has a tendency to make all its oscillations in equal time, it acts as a regulator to the motion of the wheels, and gives it uniformity. As a ball, rolling down an inclined plane, would move more and more rapidly every second, so would the rotation of the wheels in a clock increase in rapidity every second, were it not that the pendulum absorbs, as it were, all this increase of velocity, by increasing its own extent of oscillation, leaving the time between every two oscillations unaltered. It is this equality of time in the movements of the pendulum which produces and maintains equality in the movements of the wheels.

The mechanism connected with the pendulum is not very extensive. The rod is a plain piece of wood squared and smoothed for the purpose. The mass of iron, or the "bob," is cast to the required shape and size, and has an adjusting arrangement, by which it can be attached to the rod at any part of its height. In some church clocks there is a graduated arc to measure the extent of the vibrations which varies with the moving power; at the upper end of the pendulum are small pieces of mechanism in iron and brass, by which the rod is brought under the influence of the wheel-work and set into oscillation. The "bob" of a church clock pendulum, from the necessary length of the rod, is in most cases beneath the room in which the clock itself is contained.

We now come to the striking machinery. Our clock has hitherto been a silent monitor. We have offered a few items of explanation as to the manner in which it shows to the eye the progress of time; but there is an appeal to the ear which is equally worthy of notice. Every one knows that church clocks differ greatly in the number and frequency of the sounds emitted from the bells. Many clocks only strike the hour, proportioning the number of strokes to the hour of the day; others in addition to this announce the quarters by 2, 4, 8, or some other number of bells, all bearing a certain musical relation to one another; and a third kind play some particular hymn or melody at certain intervals of time on eight or ten bells. But all church clocks, with very rare exceptions, have a bell on which the hour is struck.

It will easily be conceived, that if a bell be hung in a particular spot, and a lever with a hammer at the end be placed near the bell, the lever may without difficulty be so influenced by the wheels of the clock as to cause the hammer to strike the bell. But to cause exactly an interval of an hour to elapse between two such strikings, and to have the number of blows on each occasion correspond with the hour of the day, require mechanism almost as complicated as that by which the indications of the hands are produced, still greater is this complication when the clocks chime the quarters; and when a regular melody is performed on the bells, the arrangements are proportionally more intricate.

In the first place, it must clearly be borne in mind that there is a separate moving power for the striking machinery, similar in principle to that which impels the going train. In an eight-day dial, for example, there is one spring barrel and fusee for the going-train, and another nearly the same in form and size for the striking train. In a church clock there is one iron weight for the going-train, and another for the striking-train, each weight having a cord and barrel appropriated to itself. If we notice the movements of a common domestic pendulum clock, we shall see that while one of the two weights is descending at a slow rate, the other descends only while the clock is striking; it is the descent of the last named weight which causes the striking of the clock, and this striking would be continuous if there were not checks to the descent of the weight. For a large church clock, where the tones of the bell could not be clearly elicited, except by blows from a heavy hammer, the moving power of the striking machinery greatly exceeds that of the going-train. This weight is attached to a rope which winds round an iron barrel, and this barrel gives motion to a train of wheels by the customary tooth and pinion work. The motion, however, is checked by a catch or detent, except at the termination of each hour, when a curious piece of mechanism connected with the going-train releases the striking machinery, allows the weight to descend, and causes the hammer to strike the bell.

Whether the bell be above, below, or at the side of the clock, the connexion between the striking-wheels and the hammer is easily made by levers and cranks. But although the release of the striking-machinery causes the descent of the weight and the percussion of the bell, yet this does not determine whether the strokes shall be one or many. This is determined principally by two pieces of mechanism called a "snail" and a "rack," the intricate action of which it would be in vain to attempt to explain here. Suffice it to say that the time which the striking-weight is allowed to descend varies at different hours of the day; it being sometimes only long enough to permit one blow to be given by the hammer on the bell, and at another time long enough for twelve such blows.

When the clock indicates the quarter hours on two or more bells, an additional piece of mechanism is necessary, which releases the hammers of those bells every fifteen minutes. If the bells are so numerous and the mechanism so elaborate as to produce a musical chime or a melody at stated intervals, then we have those well known effects with which the poet and the peasant are equally familiar—effects which many have felt as well as Cowper, but which few can express so well:—

> "How soft the music of those village bells,
> Falling at intervals upon the ear
> In cadence sweet! now dying all away,
> Now pealing loud again, and louder still,
> Clear and sonorous as the gale comes on."

He who hears the 149th Psalm played on the bells of St.

Clement's church, or the other tunes on the bells of Cripplegate and Shoreditch churches, must not confound these performances with the ringing of a peal of bells.

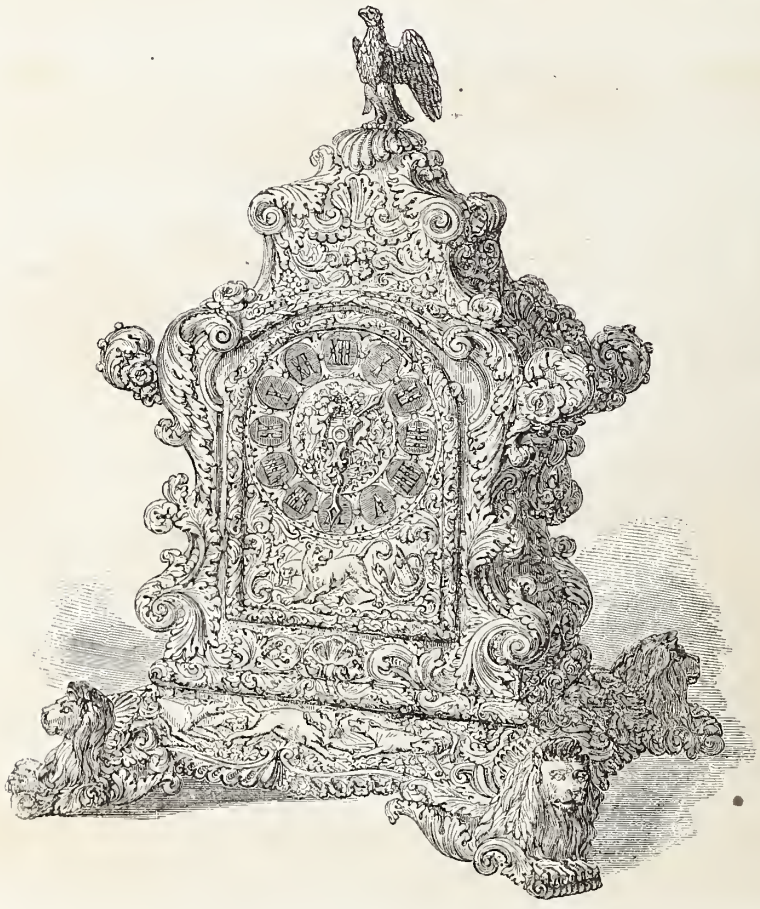
In some churches the bells play only one tune at certain fixed hours of the day; in others there are seven different tunes played, one for every day of the week, each tune being repeated six or seven times within the day to which it belongs. It is to be much regretted that the chimes of the New Royal Exchange turned out such a miserable failure.

How are these tunes played? Such a question has doubtless occurred to many persons, and is deserving of an answer. In a musical clock, as in a musical box, there is a barrel studded in various parts of its surface with small pins, or pieces of wire placed apparently in a most unsymmetrical manner. These pins, during the rotation of the barrel, come in contact with small springs in the musical box; but in the clock, they catch against small levers connected with the hammers which strike the bells. Every pin moves a lever with sufficient force to enable the hammer to strike the bell; and, therefore, the artist's object is to place the pins in such order on the surface of the barrel, as to lead to the striking of the bells in the proper order to form a tune, the bells being attuned to regular musical intervals.

The pricking of the barrel, or the insertion of the pins in their proper places is regulated. In modern church clock factories the pricking is effected by a very beautiful machine; but a description of the old method adopted, though too rude for modern purposes, will perhaps be more readily understood by persons unaccustomed to machinery. A piece of writing-paper was taken of such a size as to cover exactly the surface of the barrel; and on this were drawn in a direction perpendicular to the axis of the barrel, as many parallel lines as there were notes in the tune, the lines being equidistant and corresponding to the levers which moved the hammers. They were marked at each end with the letters or notes of the gamut which they represented; and, according to the number of bars in the tune, as many spaces were made by lines drawn equidistant and parallel, intersecting the others at right angles. The junction of the ends of the paper, when applied round the barrel represented one of these bar lines. The spaces were again divided into smaller parts, for the numerous crochets and other notes in the tune, by lines parallel with the axis of the barrel. While the paper was lying on the table, the notes in the tune proposed to be laid on the barrel were marked by black ink dots on their respective lines, and in the the same order as on the music. After this was done the paper was pasted on the barrel; and the note lines then appeared like so many circles traced round the circumference of the barrel, while the bar lines lay longitudinally on the surface of it. By this means the black ink dots were transferred and marked on the barrel by a punch or finger drill, and the pins inserted at those spots.*

But where many tunes are played by one barrel this primitive mode is inefficient. The principle, however, may be understood from it. The barrels pricked for several tunes by the modern machine are so connected with the mechanism of the clock as to shift a little when the tune is changed, so that hammers may be acted on by a different set of pins from those in use during the performance of the former tune; indeed this shifting of the barrel is the circumstance which changes the tune.

By the explanations here afforded, it is to be hoped that the reader will obtain a tolerably correct idea both of what we saw in our visit to Messrs. Moore's Factory, and of the general character of clock machinery. In the engravings on page 249 is shown the plan of the clock, designed by Messrs. Moore for the Royal Exchange, and above it the chiming machine and apparatus. The foregoing will enable the reader at once to understand the connexion between them, and to trace out for himself the movement we have attempted to describe.



ORNAMENTAL EIGHT-DAY CLOCK, TO BE SHOWN IN THE GREAT AMERICAN EXHIBITION OF 1853.

* Reid's "Treatise on Clock and Watch Making."

THE FAMILIES OF PLANTS.

The diversification of the vegetable tribes is so great, that any classification of them is a work of no ordinary difficulty. It was, however, surmounted by Linnæus, the Swedish botanist, who observed that, although there were many plants without leaves, and others without stems, or calyces, or corollas, yet that there were none bearing flowers which had not within them stamens and pistils; and thus he thought that organs so universal as these might be made useful as a basis of classification. Following up this idea, he formed the celebrated system which bears his name; and which is still in use to the great advantage of multitudes of students.*

A new era in botanical science subsequently arose, in the discovery, or rather application, of the "Natural System," as first carried into effect in 1759, by Bernard de Jussieu, who arranged in this manner all the plants in the botanical garden of Trianon, near Paris; while his nephew Antoine Laurent de Jussieu published his work, "Genera Plantarum Secundum Ordenis Naturales Disposita." According to the arrangement thus acted on, and described, plants are classed, not according to the number or situation of their stamens and pistils, but according to their natural affinities. Since the publication of the work just mentioned, many improvements have been made in the system, especially within the last few years, by Robert Brown, De Candolle, Professor Lindley, and other eminent men; and we shall now proceed to some illustrations of the botanical families which have thus been arranged.

That the natural system is peculiarly adapted to aid certain minds in their studies of botanical science, is evident from the case of Mrs. Loudon, to whom the world is indebted for much valuable information on the subject. She describes herself as despairing of attainment by other means, and then she says:—"Some time afterwards, as I was walking through the gardens of the Horticultural Society, at Chiswick, my attention was attracted by a mass of Malope grandiflora. I had never seen the plants before, and I eagerly asked the name. 'It is some Malvaceous plant,' answered Mr. Loudon, carelessly, and immediately afterwards he left me to look at some trees, which he was about to have drawn for his Arboretum Brittanicum.

"'Some Malvaceous plant,' thought I, as I continued looking at the splendid bed before me; and then I remembered how much the form of these beautiful flowers resembled that of the flowers of the crimson mallow, the botanical name of which I remembered was Malva. I wish I could find out some other Malvaceous plant, I thought to myself; and when we soon afterwards walked through the hot-houses, I continued to ask if the Chinese Hibiscus, which I saw in flower there, did not belong to the Malvaceæ. I was answered in the affirmative; and I was so pleased with my newly acquired knowledge, that I was not satisfied till I had discovered every Malvaceous plant that was in flower in the garden. I next learned to know the Cruciferous and Umbelliferous plants; and thus acquired a general knowledge of three extensive orders, with very little trouble to myself. My attention was now fairly roused, and by learning one order after another, I soon obtained a sufficient knowledge of botany for all the purposes for which I desired to learn it." We now proceed to illustrate the Families of Plants.



VIRGIN FOREST IN SOUTH AMERICA.

COMPOSITÆ. COMPOUND FLOWERS.

Flowers capitate, surrounded by a many-leaved involucrum. Ovarium cohering with the tube of the calyx. Corolla monopetalous. Stamens five, rarely four. Anthers connate, very rarely free, erect, articulated with the filaments. Ovarium one-

* An exemplification of the Linnæan system is given in the "Lessons in Botany," in Cassell's *Popular Educator*.

celled; ovule solitary, erect; style single; stigmas two. Fruit, an achenium, albumen none.

All parts of the world abound in compositæ, but in very different proportions. In the northern parts of the earth they

Fig. 221.



Calendula Officinalis.—The Marigold.

are universally herbaceous plants; but they become gradually frutescent, or even arborescent, as we approach the equator. Most of those of Chili are bushes, and the compositæ of St. Helena are principally trees.

Fig. 222.



Taraxacum.—The Dandelion.

So widely extended and highly diversified, however, is this family of plants, that during the months in which nature appears in all her vigour and freshness, we can scarcely turn our eyes in any direction, without meeting with numerous examples. If we look abroad in spring-tide, we behold the green meadows pied with daisies; if we cast our eyes along the pathway side in

Fig. 223.



Centaurea Cyanus.—Corn Blue-bottle.

summer, we find the cat's-ear, or the hawk's-beard, on the nearest hedge-bank. The housewife collects the flowers of the feverfew,

Fig. 224.



1. The Cineraria. 2. The Dahlia.

or lays up the strong-scented wormwood to drive away the moth; the farmer roots up the thistle, and the mayweed; while the village children adorn their clothes with the southern-wood

ıd the lavender, when they are attired in their Sunday clothes. hese, and many others, equally familiar, are members of this ighly interesting and popular family.

The eye but little practised discovers some affinity in the ructure of their flowers, though the foliage and the habit may e very dissimilar. The herbage of the marigold (fig. 221), and ıe thistle are very much unlike each other, not only in smell ut in form and texture. At first sight, perhaps, the blossom of ıe marigold, and the rosy head of the thistle might not strike ıe superficial observer as in any way related to each other, so ifferent are their colours and outline. But, if the blossom of ıe former be examined with a little attention, we shall per-eive that it is compounded of a multitude of little flowers or orets, as they are usually called, the whole encircled by a ommon calyx, consisting of numerous leaves or segments. If, o, after dividing the head of a thistle by a cut downwards, we roceed to disengage its component parts, we shall find that there re numerous florets inclosed within a common calyx, whose ıorny points are only the terminations of the several leaves hich compose it. In both cases, therefore, we have a col-ction of florets, bound together by the empalement of a common r general calyx.

Fig. 225.



Stylidium pilosum.

If we next examine the dandelion (fig. 222), we shall meet with ıany florets surmounted, in like manner, by a leafy calyx, which ontains them within a common circle. When, however, we ıll these little flowers by the diminutive name of floret, it must e understood only in reference to their size, for, in point of struc-ıre, they have all the essentials of the largest and most perfect ower.

In treating of this family—

"The blue cyanus we'll not forget,
'Tis the gem of the harvest coronet."

It is indeed a beautiful plant (fig. 223), abundant in corn-fields, owering all the summer; and, when it is fine, large blue flowers re seen, in contrast with the scarlet poppy, it presents a very tractive object.

But, we must glance at the cineraria (fig. 224), and the dahlia, ; which it is accompanied. The latter grows wild on the sandy ain, as well as on the mountains of Mexico, and was introduced to Europe by Baron Humbolt. It was presented by Professor avanilles, of the Botanic Garden of Madrid, in 1789, to the Marchioness of Bute, who kept it in her greenhouse, and from this species all the numerous varieties have been obtained.

STYLIDIEÆ.

Calyx adhering to the ovarium, corolla monopetalous. Stamens two; filaments longitudinally connate with the style into a column. Ovariums cohering with one side of the calyx, one, or two-celled, ovules indefinite. Fruits are capsules. Seeds indefinite, small erect. Embryo minute, inclosed in a fleshy, somewhat oily albumen.

These plants are chiefly found in New Holland; but species have been discovered both in Ceylon and the South-Sea Islands.

The column (fig. 225), which bears both the stamens and pistil in this genus, is singularly irritable. This part is jointed, and when touched at a particular point, it throws itself with force from one side of the flower to the other, bursting the anther-lobes, and scattering the pollen on the stigma.

GOODENOVIÆ.

Calyx sometimes free, at others adhering to the ovarium. Corolla monopetalous, more or less irregular. Stamens five, distinct. Anthers distinct or cohering, continuous with the fila-

Fig. 226.



Leschenaultia splendens.

ments. Ovarium more or less cohering with the tube of the calyx, one, two, or four-celled. Fruit various. Ovules erect, definite or indefinite. Embryo straight, inclosed in a fleshy albumen. Radicle inferior.

These plants are natives of New Holland, and other islands of the South Pacific Ocean. Of these we give one specimen (fig. 226).

LOBELIEÆ.—THE LOBELIA TRIBE.

Calyx more or less adhering. Corolla irregular. Stamens five. There is an expansion of the torus, or abortive stamens, at the insertion of the corolla and stamens, and this sometimes not only covers the top of the ovary, but even forms a tribe round the style. The cells of the fruit are usually opposite the calycine segments. The milky juice is acrid, and sometimes poisonous.

These plants seem to prefer countries within or upon the borders of the tropics to such as are of a colder character. They abound in the West Indies, Brazil, the Cape of Good Hope, and the Sandwich Islands; and are not uncommon in Chili, and New Holland. Only two species are natives of England; but many more have been introduced into our gardens, where they are valued

on account of the beauty of the flowers (fig. 227). A few of them are blue; but the greater number are of a bright scarlet or pink colour, while some among them are of a full yellow. One of the most common, and also of the most striking beauty, is that called the cardinal flower *(lobelia cardinalis)*, with its long slender leaves and spike of blossoms, singularly bright in hue. It is a native of Virginia. The fulgent lobelia *(lobelia fulgens)*, and the splendid lobelia *(lobelia splendens)*, of brilliant scarlet, and its foliage marked with purple spots, are not surpassed by any of this tribe.

CAMPANULACEÆ.—THE CAMPANULA, OR HARE-BELL TRIBE.

Calyx usually five-lobed, rarely entire, persistent. Corolla maxopetalous, inserted on the calyx. Stamens inserted with the corolla, alternating with its lobes. Ovarium cohering, wholly, or by its lower half, with the tube of the calyx, of two or more carpels, ovules indefinite. Fruit a capsule, one or more-celled. Embryo straight, in the axis of a fleshy albumen.

Chiefly natives of the north of Asia, Europe, and North America, the campanula tribe are scarcely known in the hot regions of the world. They constitute the most striking ornaments of the

Fig. 227.



Centropogon Cordifolius.

meadows, fields, and forests, in the countries they inhabit. Of 300 species, only 19 are found within the tropics. Of the variety prevailing in this tribe, examples are given in fig. 228. If, however, in distant regions, these flowers have some peculiar charms, in this land of ours, a gentle voice falls on the ear:—

"Are we not beautiful? are not we
The darlings of mountain, and woodland, and lea?
Plunge in the forest—are we not fair?
Go to the high road—we'll meet you there.
Oh! where is the flower that content may tell,
Like the laughing, the nodding, and dancing hare-bell?"

DIPSACEÆ.—THE SCABIOUS TRIBE.

Calyx covering the ovarium, with, or without adherence. Corolla monopetalous, inserted on the apex of the tube of the calyx, tubular. Ovarium one-celled, ovule pendulous. Embryo straight, in the axis of a fleshy albumen. Radicle superior.

Chiefly natives of the south of Europe, Barbary, the Levant, and the Cape of Good Hope, this tribe do not affect particular stations in any striking degree, except that they generally shun cold, and do not attain much elevation above the sea. The Morina Persica is a fine example (fig. 229).

The teazle, used by fullers in dressing cloth, is the dried head of *dipsacus fullonum*. This plant is grown in Yorkshire

Fig. 228.



1. Wahlenbergia Vincæflora.
2. Roella Ciliata.
3. Platycodon Autumnale.
4. Campanula Nobilis.

and Wiltshire, and is still of great service in our manufactures; for

Fig. 229.



Morina Persica.

"Armed with the bended arms that pull
Through the close web the knotted wool;
Raise the soft downy nap, and smooth
The texture with tenacious tooth;
No skilful art a tool has planned,
To match that gift of Nature's hand."

KING JOHN REFUSING TO SIGN THE MAGNA CHARTA AT OXFORD, IN 1215.



DESIGNED BY GILBERT.

LL the liberties that European nations possess were wrung from yrants and oppressors, in moments of fear or weakness, and the rst great concession to popular rights in England was made by ne vilest and most pusillanimous of her kings. It was a fortuate circumstance for the Saxon race that their Norman conquerors ere not long settled in the country when their quarrels among nemselves diverted their attention from the wives, daughters, nd goods of their serfs, and vassals; but it was not until John scended the throne, after the death of his lion-hearted brother, nd the murder of his nephew, Arthur, that these divisions eached such a pass as to secure positive advantages for the body of the people. The leading incidents of his reign are familiar to most Englishmen.

It was commenced by a war with his nephew, who retained the French provinces, at that time attached to the English crown. By a *coup de main* Arthur was defeated, and fell into his uncle's power, who barbarously murdered him with his own hands. He next divorced his own wife, carried off that of Count de la Marche, and married her in spite of priests and people. A rupture now broke out between him and Philip, King of France, and John summoned the barons of England to attend him to the war; the majority refused, but some went. Instead, however, of going

into action, he stayed toying away with his young wife in Rouen, and when news was brought him from day to day of the victories of the King of France, he would give his head a foolish shake, and say that he would recover in a day all that it had taken the enemy a month to acquire. At last his cowardice and imbecility disgusted every one so much, that he was deserted by all, and was forced to regain England by an ignominious flight.

Here new troubles awaited him. In order to cover his own disgrace he declaimed loudly against the barons, to whose misconduct he ascribed all his misfortunes; and he arbitrarily extorted from them a tenth of all their moveables as a punishment for the offence. Soon after he forced them to grant him a scutage of two marks and a half on each knight's fee, for an expedition into Normandy, which, however, was never attempted. He next put to sea with a small army, vowing that he would imperil his life for the recovery of his French dominions; but in a few days he returned into the harbour, without having struck a blow, amidst the laughter and execrations of his subjects. His exactions had now gained him the hatred of the barons, as his cowardice their contempt; and they were making preparations for asserting their rights, when an embroilment with the church brought his difficulties and disgraces to a climax. Pope Innocent III., who at that time filled the pontifical chair, was a young and ambitious man, anxious above all things to extend the papal domination, and determined to fix his yoke on John upon the first opportunity. It soon arose. The primate died in 1205, and the canons of Canterbury, without waiting for the king's *conge-d'élire*, according to custom, elected a successor without delay, and immediately sent him off to Rome for confirmation. John's rage, on hearing this, knew no bounds.

After a long contest with the Pope, the latter, perceiving the imbecility and cowardice of his antagonist, proceeded to force him into submission by putting the kingdom under an interdict. This was one of the most dreadful calamities which the superstitious people of the middle ages thought could befall them. The nation was suddenly deprived of all exterior exercise of its religion; the altars were despoiled of their ornaments; the crosses, reliques, and statues of the saints were levelled to the ground; and, as if the air itself would pollute them, the priests carefully covered them up; the bells ceased to ring, and were removed from the steeples. Mass was celebrated with closed doors, and none but the priests permitted to be present; no religious rite was administered, except baptism to new-born infants and extreme unction to the dying; the dead, instead of being buried in consecrated ground, were thrown carelessly into the ditches, or interred in the fields, and no prayer or ceremony soothed the anguish or excited the hopes of the mourners. Marriage was celebrated in the churchyards, and all entertainment or indulgence was prohibited to people of every rank, even the use of meat or the shaving of their beards. There was nothing but sorrowing and desolation everywhere.

John sought to retaliate by imprisoning the concubines of the clergy, and other means of similar nature; the conflict continued for many years, but at last he submitted, and on his knees professed his sorrow for his contumacy, and acknowledged himself the Pope's liegeman and vassal. The barons were still more disgusted by his conduct in this affair, and in addition he dishonoured their families by his gallantries, affronted themselves by his insolence, outraged them by his tyranny, and gave discontent to all ranks of men by his endless exactions and impositions. They rose in arms, and met in London, where they demanded of him a confirmation of King Henry's charter. He asked for delay, and gave hostages for his good faith, promising an answer at Easter. When the time came, 2,000 knights assembled at the head of a great number of armed retainers, and advanced to Brackley, within fifteen miles of Oxford. When the king, who then held his court at Oxford, heard of their approach, he sent the Archbishop of Canterbury and the Earl of Pembroke, and some other sage men, to ask them what were the laws and liberties which they claimed. The barons delivered to the deputies a schedule containing the greater part of the ancient laws and customs of the kingdom, and declared at the same time, that unless the king granted them on the spot, and confirmed them by a charter sealed with his seal, they would compel him by the forcible seizure of his castles, estates, and possessions. The archbishop and companions on their return presented the memorandum to t king, reading over each article verbatim. As soon as he comp hended its tenor, he laughed with a furious and mocking a "Hah! the barons will be content with these iniquitous exactio will they?" he roared. "Why don't they ask my kingdo their demands are absurd, and have no foundation in right, a by the teeth of God" (his usual oath), "I will never grant the If I did, I should no longer be a king, but a slave!" This is t scene which our artist has endeavoured to depict.

We need hardly say that the barons carried their threats i execution, and that John was soon after obliged to sign Magna Charta at Runnymede, thus securing to every order men in the state, the protection of their liberty and property fr arbitrary violence and illegal taxation.

AN EVENING IN LOW COMPANY.

Oysters are very much isolated in their shells, and grubbi moles in their burrows, and so are Englishmen in their hom "An Englishman's house is his castle;" like a spider in web, he wants no one there out of whom he can get nothing. have less knowledge, less care of our neighbours (brothers a sisters, reader), than we care to confess even to ourselves. F instance, the beggar to whom we cast a copper coin,—wh does he live, and how does he live? He sits not there for ever monumental mendicant, he goes somewhere and does somethin but what it is he does, and whither is it he goes? The lad w carries our carpet bag from the railway station, plucking his ca peak so assiduously each time he speaks; the costermonger w nearly runs his truck over us at the street crossing, and th growls out "where are you a shoving to?" the short-haired loo built labourer, who lounges against the street post, smoking th most detestably black and stumpy pipe,—what becomes of the —what do they do with themselves when night ends their toil a gives them their short and weary leisure? Who amongst knows? Who cares? Who has followed them to their haun studied them in the places they call their homes, and can tell how the hours are passed which make up the complement of th existence between toil and sleep? "One half the world kno not how the other half lives." Perhaps if we did, it would better for both the halves. If we knew each other better, should love each other more.

Passing at night through the "low quarters" of our metropo through dark and narrow streets, muddy and fœtid, where shatte shutters give glimpses of the squalid homes of the poor, where dim light of the thin candle reveals their bare discomfort, have noticed sadly how vacant and how dull was that domes life. Perhaps some labouring man, large limbed, heavy brow and lean, sitting by a little fire smoking the perpetual pipe, di noisy children scrambling on the floor, the careworn slatter wife with her elbow on the round deal table, (very seldom young men or women there), sit sullen and silent, or speak little trifles with dull uninterested words; their eyes are hea and emotion or mirth seems foreign to them. This dull bl barren life stifles us. Surely this cannot be all of solace, satis tion, enjoyment which the leisure of the labourer affords. If have no future to look forward to, no past which he cares to rec the present hour is his; how does he use it? Surely it is not hidden in this empty gloom. The men who live in lanes, alle courts, and bye-streets of our city, amidst very unsanitary arran ments, must have some change, some stimulus, some amuseme Their instincts, appetites, their animalism and no-culture dem amusement, and will have it. The poor man's life is not like extinct volcano, black and herbless, scarred with the lava tra of suffering; something greener and happier surely there is in th course. There are times and places where they go to try to happy. Let us see how they take their amusement, let us v one of the "low theatres." Pity that such places are permitte remain so "low," whilst so much philanthropy hardly kn what to do with itself.

Great glaring gas-lamps outside; a lofty entrance, with a la rinth of sloping passages, with the smell of a prison about the huge boards advertising the performance in letters a foot hig

sallow furtive-eyed youths about the doors, with caps pulled very much to one side, their hair of peculiar cut, and twisted to a peak over their temples.

To what part of the house shall we go? Boxes ninepence, pit sixpence, gallery threepence. We shall see the people better from the pit; a little audacity will get a front seat, for the pit is not quite full yet, it being early.

A large house this—like a huge three-story barn, hastily fitted up, gaudily and coarsely decorated, with no attempt at comfort, but much at packing close. The proscenium is ambitiously daubed in red, and white, and blue, rather dirty, and the worse for wear. The ceiling, from which hangs an enormous chandelier, is covered with some mysterious attempts at an unfathomable allegory. The numerous gaslights are turned on to the full, and make the place very hot. The orchestra are labouring at an overture. Our neighbours are evidently *habitués* here. The three young girls in front of us are eagerly discussing with "their young men" the merits of the performers. They know all about the lady who is to play the heroine, "she is not half so good-looking off the stage, not she." The fat unshaved man in the rough jacket, redolent of rum and tobacco, is swearing to his blear-eyed companion, at one of the players whom he peremptorily sets down as a "muff." Stout women are squeezing small men and boys into a definition of space. In twos and threes all are talking aloud. They do not care about the concealment of a whisper. What a crowd there is in the gallery, a field of heads,—there is a young rascal clambering, at the risk of his neck, along the iron railings, he puts his unlucky foot in a woman's bonnet, hanging in front, is cuffed over and swallowed up in the crowd in an instant. Such shouting and crushing, and scrambling and hustling, and all so good humouredly endured. In the boxes a scanty sprinkling of families and fast young men and fat shopkeepers.

By their dress, and by their pallid, marked faces, we judge the audience, nearly all of them, to be workmen, their wives, and sweethearts. Of caps pulled on one side there are many, fustian jackets not a few. Up in the gallery we see some in their shirt-sleeves, some with bare arms. Bonnets, shawls, coats, and jackets are slung round the gallery. Olympus is troubled, the gods are angry up there. Some cause of strife has been given; what was noise before, is fierce confusion now. "Turn him out." "Pitch him over." "Will you, though; come and try it on." "Shame, shame." "Turn him out, turn him out." There is a tumbling scuffle in a particular spot. Hundreds of voices are rearing, then loud derisive laughter and peace. The bell tinkles, the thread-bare curtain is rolled up, the drama begins. This said drama is advertised in the playbills as of "powerful interest and novel success." The ghostlike, staggering scenery; the dresses, so incongruous and tawdry; the actors, whom nature meant for seavengers, but who had mistaken their vocation; the improbability, unconnectedness, want of purpose or fitness, shock the taste, destroy the illusion, and balk the enjoyment of any trained mind; yet these people are evidently interested, their eager faces straining forward from the back of the gallery, their ready applause and occasionally intense silence vouch for their appreciation of the profligal and prodigious "effects" exhibited to them;—screams, terrors, tears, prayers, threats, defiances, clashing swords, pistol-shots, thunder and lightning, seizures and sudden rescues, fearful struggles, death of villains, blue lights, and grand tableaux. This is the drama written down to the people. It is to them a strong excitement, a sensuous stimulant: they desire to have something to stir them up, and they get it. Its tendency is gross, as that of all literature is which stoops down to men, not raises them up to itself. All this glare, bustle, and ferocity please and dazzle the lookers-on, but its teachings are unveracious; they do not present life either as it is or as it ought to be. It is unreal, and it seeks lower and lower depths. The people like it, because they are of that condition of life and intelligence which is found in savages and children, when, only able to understand that which appeals to their senses, they demand the strongest, though the most improbable contrast to the daily life they lead. Some of the effects are notable. Any sentiments which are "plucky," as they call it, are vociferously applauded. When the bushy black bearded hunter swears with a coarse oath, "he *never* turned his back on an enemy, and he never will;" when the deep-voice domestic hero flourishes his hand with the tremendous determination to fight three villains and "shed the last drop of blood in his heart in defence of lovely and helpless woman;" when at last the half-killed ruffian rises on his knee to strike another blow, and dies with a frown on his face and a curse on his lips,—then the theatre resounds with stamping of feet, clapping of hands, and shouts of "bravo."

They are intensely serious, these rows of pale-faced workmen with their sunken eyes intently fixed on the scene before them; perhaps the lassitude of their frames from their labour leaves them impressible by nothing short of these exciting representations. These serious listeners show no gaiety, no lightness, all is heavy and earnest like their work. They have a certain rough sense of honour, and a theoretical, and, we think, a practical respect for the womanhood of woman. They seem to have imperfect ethical perception. Intrigue, though dishonest, if clever, agrees with them; they pass the immorality in the dexterity and cunning of the cheat.

The first act of the drama over, the Saxon propensity for food and strong drink shews itself. The shrill voiced boys and girls push their way along the seats, crying, "any apples or gingerbeer, a penny a bottle, large apples four a penny,—eight a penny apples." The people rise from their seats, the buzz and riot of the gallery recommence. The air of the theatre is very warm and loaded with not very pleasant perfumes. Men in the pit begin to take their coats off, and women their shawls and bonnets. Looking around, we see all mouths eating, here and there men are handing about large stone bottles. Our friend in the rough jacket is at his rum-flask. Young women are pretending to be shy about taking glasses of gin which their young men are pressing upon them. What a number of young boys and girls there are here with such old faces and such harsh voices; hear them call each other "old chap" and "old gal."

Half the people had gone out, and now come rushing and pushing back, adding the smell of liquors to the already oppressive atmosphere, and so on through the evening, alternating between the theatre and the gin-shop.

After the drama, there is some dancing, specially a hornpipe, by a young man dressed as a sailor. How the audience do encore that hornpipe, and after a repetition, send the breathless dancer, crushing his straw hat to his breast, and bowing over and over again, off the stage, amidst a delirium of applause. Then more discordant performance by the orchestra, of whom, the cornet-a-piston is either drunk, or cannot make his instrument play, for we only hear a bray every now and then quite "promiscuously." Then the farce, all silly grimace and noise, low and ridiculous joking; no wit, no true fun, no genuine humour, much making of frightful faces, jumping and capering about, poking ribs, and so forth, but nothing real to redeem the essential vulgarity of the piece, and yet the accommodating audience do laugh, laugh immensely, laugh as if it were their duty to laugh; they expect the piece to amuse them, and they are amused accordingly. After this, another "highly interesting drama." This is beyond endurance, we stay one act of it, we see the same stale common-places mouthed out as though they were grand utterances, the same injured innocence and chivalrous protection, the high-born and noble villain, the lowly and gallant hero, more combats and rescues. We know what the rest will be. The hour is almost twelve, the effluvia and the heat are sickening. How cool and sweet the air seems outside, the fair round moon is shining between the black house chimneys, small clouds suffused with light are floating in the sky. The white light streams down, making the lamps look dingy sickly things. How the enduring face of Nature contrasts with the feverish falseness of the scene which we have left. The streets are growing silent, now and then a cab rattles past, or the inarticulate song of the reeling drunkard profanes the calm of this most beautiful hour, the river trembles in rippling silver, the old palace at Lambeth is lit with a fine effect, the black hulls of the barges are sleeping by the wharves—all is balm and blessed soothing beauty. There is the bright fire and the easy chair, and the careful comforts and the loving arms round us, men and women, brethren and sisters, the meanwhile creeping to unwholesome dens, to dark and cold homes, to rudeness and discomfort,—aye, and worse than these, and we in our isolation, know not, and reck not of their ruin.

PAINTING OF ANIMALS.

THERE is scarcely a doubt that the painting of animals would have been made a separate department of art, if many eminent historical painters, such as Rubens, and Schneder had not proved that those studies which have for their object the habitual representation of man conduce in an equal degree to the able delineation of the lower animals. By a parity of reasoning, landscape and portrait painting are not looked upon as separate divisions, for many great historical painters, Poussin for example, have excelled in these also. But in reality, there can be no well grounded reason for refusing to acknowledge as "genre," a field of art so important, and which calls for special study, both long and laborious, and which has of itself been a sufficient foundation for great reputations.

In the last century, some writers admitted the existence of nine classes of painting,—history, battles, marine, portrait, architecture, decoration, animals, landscape, and flowers. One would suppose at first sight, that this arrangement was purely arbitrary, and that there was no valid reason for placing history and battles in the first rank, and landscape and flowers in the lowest. But a little observation of the manners of the time will show that such was not the case. The fact is, it was the former alone which were considered noble, or which elevated those who cultivated them, in the estimation of society. Paul Potter was a suitor for the hand of the daughter of Nicholas Balkenede, and in the ardour of his passion cast himself at her father's feet and implored his permission to become his son-in-law. "One who paints beasts and not men," was the cold reply, "is not worthy of the daughter of an architect." "Take away those maggots," said Louis XIV., with an air of offended dignity, upon seeing some of Teniers' *chef d'œuvre* placed in his gallery beside the pompous allegories of Lebrun, and the battles of Vander Meulen. A French writer of the present day has attempted to justify the monarch's exclamation in the following passage:—

"It is not verdure, or trees, or hamlets which should adorn the interior of palaces; historical painting enters with a far better grace within the domain of the chiefs of nations, the successors of the heroes of the drama, that they may thus have before them salutary warnings and examples. But as to us simple citizens, is enough if our eyes rest upon modest landscapes, the soothi charms of our leisure hours, and in nearly every case the goal our labour and ambition."

We doubt if many English readers will agree with the abov A calmer, soberer, and more rational feeling directs our tast We do not single out any *genre* as the object of our admiratio and speak contemptuously of all others. What we look for in t works of our artist, no matter to what class he may belong, is truthful, sincere, beautiful, and powerful expression of the li which animates not man only, but the whole creation. In t midst of the whirl and bustle of town life, when wanderin *ennuye* or fatigued, through any of our galleries, who does n stop involuntarily before the paintings which represent rur scenes, and remember, regret, and desire to be there, fan himself gazing upon cows lazily chewing the cud, under t shade of the spreading trees, or the fresh earth upturned the ploughman and his panting smoking team. Whatev



LANDSCAPE AND ANIMALS. FROM A PAINTING BY TROYON.

pleasure we receive in these few moments during which o imagination carries us away, we owe to the truth and sincer of the painter. A French artist, M. Troyon, has fully di played the characteristics which we have been attempting describe. Some years ago he exhibited some paintings at t Louvre, which excited considerable surprise by the boldness their style, which, however, soon subsided into admiration, b cause it was founded upon a real originality, upon choice b natural effects, and great power in colouring. He has n abandoned landscapes to paint animals. Those qualities alo which laid the foundation of his reputation, continue to suppo it. In rambling in the country, gazing on the wood meadows, and horizon, the landscape painter often meets wi scenes such as that represented in our engraving; in t back ground a waggon load of hay; in the fore ground, cov rushing furiously forward upon the poor fagged and frighten sheep; the angry herdsman, and the dog, his policeman, e deavouring to protect the oppressed plebeians, and restore orde Our engraving well represents the leading features of this rust

meute, but it cannot reproduce the warm and vivid light which n the original plays upon the cattle, making them stand out n relief against the sky, which, for the sake of contrast with-ut doubt, the painter has made rather dull and heavy. The reath of nature animates the whole scene, and the plain and the erd have power in awakening a poetic sentiment in the spectator, who would stand cold and unmoved before a battle or a mythological reminiscence.

Our second engraving is from a painting by Palizzi, an Italian rtist, and is much of the same nature as the former one.

Palizzi was born at Naples, and in that gay and beautiful town ommenced his first studies of art. In about seven or eight years fterwards he removed to Paris, where, as an Italian and painter, e was received with great cordiality by all the artists; but his arliest works were by no means admired. Many thought they ould perceive in them great harshness, coldness, and conventionalism. These criticisms, did not, however, discourage Palizzi. They were in a great measure just, and he had the good sense not to quarrel with, but to profit by them, and therefore resumed his labours with fresh vigour and greater experience. The amount of success which he achieved at the next exhibition was amply sufficient to reward his labour and self-denial. He made his debut, as Diderot said of Loutherbourg, by following the same line as old Berghem.

This painting, which our engraving reproduces, is well conceived; the accidents of the ground are ably arranged, so as to give at the same time depth and variety to the canvas. The cattle and sheep, bought at a fair in a neighbouring town, are coming down pell-mell in hot haste towards a ford,—sheep, goats, cattle, pushing and leaping in mad confusion. This moment of disorder in approaching the water affords a good opportunity for displaying liveliness and diversity in the movements and postures of the animals. The sheep which have first arrived at the brink have a physiognomy totally different from that of the others, and even the grey of their wool possesses a difference of hue, without, however, any affectation, and at the same time with great truth of tone. The uniformity which might have been produced by the angular outlines of the principal group of animals on the height, overtopped by the young girl on horseback looking away to the horizon, is softened and relieved by the view to the right, where a horse is drinking at his ease, regardless of the bleating, bellowing multitude, and the animation depicted in the foreground. A lively light is thrown over the whole scene, so as to allow us to appreciate the striking qualities of the picture even in the minutest details—the fineness of the colouring and the correctness of the drawing.

The works of these two artists present a favourable contrast to those of most of the French school at the present day, "in which," as has been well remarked, "the mischievous effects of an inordinate rage for copying the antique are too notorious for anything but the blindest prejudice to overlook or tolerate. It seems, indeed, to be the fate of this school to be ever in extremes. Formerly they were tawdry coxcombs; now they affect to be the plainest Quakers in art: formerly they absurdly endeavoured to invest sculpture in all the rich ornaments of painting; now they are for shearing painting of her own appropriate beams, and reducing her to the hard and dry monotony of sculpture; formerly their figures were obscured by splendid colours, buried under huge masses of gorgeous draperies, flying in all directions, and lost amid columns, arcades, and all kinds of pompous and misplaced magnificence; now they glue their draperies to the figure, paste the hair to the head in all the lumpish opacity of coloured plaster; nail their figures to a hard unbroken ground, and avoiding everything like effect and picturesque composition, often place them in a tedious row from end to end of the picture, as nearly like an antique bas-relief as possible."



RETURNING FROM THE FAIR. DRAWN BY FREEMAN, FROM A PAINTING BY PALIZZI.

THE SISTERS IN ART.

PART III.

"The more reason that I should be kind to her, if possible, aunt," said Alice; "but who is this old Guiseppe—is he a relative?"

"No;" said Mrs. Silver, "he lodges, and partly boards with them. He was once very well to do, and kept a large statuary shop in the neighbourhood of Drury-lane theatre; but his only child, a daughter, did very badly, and ruined him, and nearly broke his heart. Since that time he has lodged with the Wilsons, and supports himself by making small casts, such as the poor Italian boys hawk about the street; and sometimes, when times are best with him, he makes wax preparations for our good doctor up stairs, and others like him. Yes; it was our old Nancy that got Guiseppe the work, and I was very angry with both her and Lizzy a long while about it."

"Why, aunt?" asked the young girl with simple surprise.

"Why?" repeated Mrs. Silver with haste,—"Why, though our Nancy is very fond of Lizzy, and never has a holiday but what she goes to the Wilsons, I know, it was very wrong in her troubling a great gentleman like the doctor. Aye, I can assure you, she does more than I do—or should have courage for—for though the doctor has been our lodger for now twenty years, I never go into his rooms, when he is in town, except on Midsummer and New Year's day to receive the rent."

"Well, aunt," replied Alice, "I have seen enough in my own life to know, that it is often the most grave and taciturn people form the warmest attachment to those who kindly attend to their wants, like our good old Nancy. But this brings to my mind, aunt, that you have never shown me the doctor's rooms, though he has been out of town ever since I have been here."

"No, my dear," said Mrs Silver, assuming a tone and attitude of matronly dignity most amusing. "No, *I* do know what is proper for a young girl of your years. And I should no more introduce you into the doctor's rooms, where there are skulls and skeletons, and heaven knows what, than I should burn your hand. No, my dear, no; and that is why I have kept the door locked, and given Nancy strict injunctions."

"Aunt," said Alice, "dear mamma, nor Mrs. Fountains, nor my dear father ever turned a lock against me—you should trust to my sense of honour; besides, I have drawn the skeleton, both whole, and in portions, and never found anything which made me worse for so doing. And more, too, in our academy we draw the undraped figure."

"Aye, aye," resumed Mrs. Silver, "it's a dreadful age I know—and it's well that the end of the world is as near as it is. But that's no matter, my dear. *I* shall do my duty by you—for I've known enough of these things—even if I didn't know what Guiseppe's daughter has become at last."

"What, aunt? people are not always wicked when acting differently to ourselves."

"Well, I don't know, my dear. Only Guiseppe's daughter is sunk into a model—that's being as wicked as she can be, and sinking as low, I think, as a creature can."

"I don't defend her, if she is wicked, aunt," said Alice, "but her being the subject of an artist's brush or a sculptor's chisel, does not in its single sense make her vile; though I think we ought to make of no one a model, especially as images in the likeness of God, except the soul and character be as lovely as the body." And Alice was going in her enthusiasm to say more, when glancing at worthy Mrs. Silver, she perceived that the good lady kept up a continuous shake of the head, as well as smiled incredulously—so she at once dropped the subject, only adding in a moment or two, "Well, aunt, only take me to see Guiseppe and Lizzy, that is all. I think I shall like the old Italian very much."

"You shouldn't like any one, Alice, that don't pay their rent," said old Silver, in his driest and most cynical voice. Startled, the young girl looked round, and saw her uncle sitting wide awake in his chair, as in truth he had been through the whole conversation, and looking as old Ralph had described him, on the night of the first interview. But she had already learnt a way to soften him when in these moods. So she rose, sidled up to his chair, and put her hands on his shoulder. "You must not mind our going to see Lizzy, uncle."

"That depends upon a little point," was the answer. And here Mr. Silver coughed drily, a thing he always did when he had to make some unreasonable proposition or a much-coveted object to gain. But he felt sure of gaining it with Alice.

"Why, my dear, my rule is, favours should be returned. So if you go to the Wilsons, and I accompany you, which I think of doing, *you* must oblige me. He-m—I have an excessively-rich Majolica dish, which I bought at a sale a year ago for ten shillings, because a piece about the size of the forefinger is chipped out, and the piece lost. But if I could get a little design painted sent down to the Potteries, and a piece made to fit into the dish I could sell it for twenty pounds, provided it were well done,—yes, Mrs. Cohen, the rich Jewess, has expressed a wish for it several times, and would take it directly I know. So, will you—he-m—"

"Don't hesitate a moment, uncle," was the kind reply, "I will set about it to-morrow, and strive to do my best, though the exact match of the colours will depend more upon the potter than on me."

Alice said this so kindly and willingly as to gain at once an entire step in old Silver's favour, who was never so well reached as through some matter touching his interest; as if Alice could execute the little design, it would save him applying to a first-rate artist, the only one that could effect such a difficult, yet minute, point of art; and, moreover, if the dish were afterwards sold, he should put a considerable sum into his pocket. But whilst the old man thought that he only served his own small selfish ends, he was thus leading the way to a friendship which to his niece and her art-life was to be more priceless than all the gold he owned.

Whilst this conversation was carried on, Mrs. Silver had disappeared, and now came back, as Nancy brought in the early tea, resplendent in her richest black satin dress, a lace collar, a huge brooch, and a big watch stuck at her side. And she took her place at the tea table with a pomposity that declared how much these things had cost.

"Why, aunt," said Alice, as she stared in astonishment at the good lady's finery, you are not going to the Wilsons, then."

"*I am*, my dear," was the emphatic answer; "I always dress in my best when I go to see my inferiors. Dress inspires them with awe and respect."

Alice's flashing eyes and heaving breast bespoke the warm indignation these sordid, vulgar words had roused, but she was too wise to make an answer, whose only result might have been to put off indefinitely this much-wished-for visit.

Fortunately, upon reconsidering his proposition, Mr. Silver determined upon staying at home and summing up his private cash book; so that, free from any small possible vexations, Mrs Silver, as soon as tea was over, put on her second-best bonnet—a very fine affair—a richly-trimmed cloak, and set off with Alice to church.

So there, in that fine London church, worldly little Mrs. Silver knelt and prayed, and sat an hour, and more, her thoughts more busy with the things of this life than of the life to come; and yet she meant well, prosaic little woman. At length, when church was over, and she had stared duly at the company and the gold lace of the beadle, she put up her sky-blue parasol, though, to say the truth, the sun was sinking, and her complexion none of the fairest, and set off to Fetter-lane, arriving there about half-past eight, in excellent temper, though a little hot and tired, for the many glances of interest and kindness directed by passers-by to Alice's sweet young face, she had noticed and duly set down, not so much to the account of her own personal charms, as the cost of her satin per yard, and the price of her mighty watch.

Alice who had not yet seen the worst, or most crowded parts of London, though many lay in the neighbourhood of Soho, was astonished at the close, fœtid air of the court into which Mrs Silver led her, and still more by the thick night shadows which lay over it—though it was yet light in the streets—and the sun gilded the roofs and spires. At the furthest extremity the good lady knocked at the door of a shabby house,—so shabby and old

and dull, and decaying as to look as if it could not belong to a city full of youth and vital energy. A little sickly boy of about ten years old opened it, and crying out immediately, "Mother, here's Mrs. Silver," ran back as if to make the announcement. Not waiting for any permission, Mrs. Silver followed him, through a side door in the dingy passage, into a large boarded room, filled with children, and a woman seated before the front of a small fire with her feet on the fender. She turned a hard, bad tempered face, just as Mrs. Silver entered the room door, and saying "let the fine lady come in, Dick," allowed the curiosity dealer's wife to make her own introduction.

"I'm come to see you, Mrs. Wilson," she said in a kind persuasive tone—for the woman's wolfish, cruel look, had scared away her complacent air of self-importance, "and brought my young niece to see Lizzy."

"It's wonderful, ma'am, you should come to such a place as this, with poverty at the door, and ten children to support and nothing to support 'em on." So saying, she seated her tall gaunt figure towards the fire, without proffering a seat or using any show of courtesy to her guest. The little woman in bright satin was quite distressed—but she strove to conceal it.

"When we have friends, Mrs. Wilson, we should quite forget their riches or poverty, particularly when friends are as old as your husband and mine. But how is Wilson? is he and Lizzy at home?"

"Well enough and lazy enough," was the ready answer, "and up of course as usual with that old fellow,—oh! I wish the house would tumble on him."

"We shouldn't wish evil to others," said the little woman really from her heart, "but as my niece wishes to see Lizzy, will your boy call her down, and at the same time, tell the young lady who is yet in the passage, to walk in."

Mrs. Wilson made no other answer than to desire the boy to call his sister down, and then, regardless of her children, her guest, and the fair young happy creature that now came in, slunk as it were towards the fire. But her ear was open, and the instant she heard a descending foot on the stairs, she turned sharply round the same cruel relentless face. Though this but for an instant—for in another she was on her feet, and met Lizzy just as she crossed the threshold.

"There, ma'am,—there, Mrs. Silver, shame her if you can,—there's hair and dress on a Sunday; you see what children I have; they are a nice addition to poverty." So saying, she chucked the child violently beneath the chin with one hand, and with the other, was aiming a blow at the meek descending head, as in habitude of such an act, but it was checked before it fell, by the clinging hands of Alice,—for an instant her eyes and those of Mrs. Wilson met,—and the shrew cowered beneath their calm yet determined expression of defence.

"Why do you hit the poor thing?" asked Alice, amidst the hustling intervention of Mrs. Silver, "it may be no fault of her's that she's dirty and ill-dressed."

"Why?" This was all the woman said, and then she slunk back to her seat by the fire, her other children, except the youngest, creeping away, and cowering round an old oak dresser in a distant part of the room. But Lizzy neither moved nor spoke, nor raised her face, she only kept clinging to the hand of her friend.

When Alice had told Lizzy she had come to see her and the old Italian, the child without other answer than a look, led her from the room to the foot of a broad and dilapidated old staircase, where she stopped, and looked eagerly up at her friend. "Poor thing," said Alice in her pity, "old Mr. Wood came back into Yorkshire, and talked so much about you, as to make me seem as if I had known you a long while."

These words opened at once the child's pent tears, and leaning against Alice, she clung to her and wept passionately. But these were soon dried by the tender sympathy of her friend, and as they went slowly up stairs, hand in hand, so much sunshine and new life was upon Lizzy's face, as to render it difficult to fancy that her young days had hitherto been so full of sorrow.

When Lizzy opened the door and led Alice into a very large room, two-thirds filled with casts of all sorts and sizes, many of them very fine, and she beheld Guiseppe's still finer, though very aged face, she seemed to instinctively feel, that this place would be fruitful to her, and that now, for the first time since she had come to London, a friend who could really speak of her beloved art was before her. The Italian was seated in an old leathern chair beside a fire-place, which was very small considering the size of the room, as indeed seemed everything in the shape of furniture about the old place, as if purposely to give space to colossal casts of the Torso, the Numidian lion, and the Laccoon, which stood forward on the floor in magnificent array. On wood shelves, dark with the dust of years, and running all round the room, were lesser casts of various kinds, whilst from hooks in the ceiling swung casts of candelabra, of portions of the human figure, and imaginary glories, such as those of angels' wings. The old man sat drooping in his chair, whilst close beside him was a younger man, whom Alice knew, by the extreme likeness, to be Lizzy's father. When he saw Alice, and Lizzy said she was Mrs. Silver's niece, he rose kindly and gave her his seat by the old man, who at once seemed to take an interest in her coming—for Lizzy had duly related to him all the particulars of the old Yorkshire schoolmaster's visit. But what struck Alice even beside the almost classical expression of Guiseppe's face, was the kind and gentle goodness in that of the poor tailor, and it seemed wonderful that a nature like his, could not in the course of years, have softened and improved the temper of the hard, ferocious woman down stairs. He seemed now in a moment to understand that it would not do to leave Mrs. Silver to her courtesy, so after a few whispered words to his trembling child, he left the room, and Alice and Lizzy were alone with the old man.

"So, miss," said Guiseppe, in perfectly good English, and with much interest of manner, "you are come to London to study art, are you. May I ask—as I know a good deal about such matters—where you are studying, and for what purpose? Are you in the Female School of Design?"

"No, sir;" she said modestly, thinking the old man knew so much, "I am so far advanced in instruction, as to be little benefited, beyond perhaps the fact of facility in mere design, if I went there, for I was taught by a lady who had herself a very noble power in art—and since her death, by a master, who has a very high name, as a landscape painter of our Yorkshire moors. No! I study in an academy where our attention is chiefly directed to the living figure and anatomical drawing."

"Right, child," said the old man emphatically, "for though you see me here poor and old, I have an exalted idea of art and its requisites, for I was brought up as a sculptor, and followed the art, till the misfortunes of my country drove me to England for bread. Here, for want of patronage, I took to making plaster casts, and was the first who laid the foundation of a better taste for art among the people, by distributing amongst them casts of our most classical statues. But age and misfortune came upon men, and younger and more active men took up my trade, and made it answer. Now, I gain a living by modelling in wax anatomical portions of the human body. But I sadly want drawings, and they are expensive—for though I was once anatomist enough to model from the eye alone—now it is different, since my eyesight fails me as it does."

A thought crossed Alice Law's mind, though she said nothing; but now spoke of Lizzy.

"Yes; she is good to me, she is indeed," said the old man, "an angel to me, better and more dutiful to me than my own flesh and blood have been" * * * * Here the old man abruptly stayed; hesitating, as it were to go on, till the child herself noticing it, left the room. A point of delicacy which at once struck Alice; Guiseppe, however, only seemed to notice it so far as it was a relief to him, and allowed him to speak freely.

"But," went on the old man emphatically, "that woman below—her mother I mean—is killing her. She has been drooping ever since it was discovered that I taught her drawing; and that woman in her mad and jealous rage destroyed her little drawings. Poor child, I thought her darling heart would break."

"And why?" asked Alice indignantly.

"Because she wants her child to be a household drudge—to wash, and scrub, and nurse—but as I told her, it was killing the goose with the golden eggs."

ROBINSON CRUSOE'S CHESNUT TREE.



ENVIRONS OF SCEAUX; VILLAGE OF ST. ELOI.

The railway from Paris to Sceaux winds away in a serpentine line, and the train passes onward amid two grassy embankments, where some of the fairest flowers spring, and tall trees lift their heads. The peaceful solitude of the place is broken by the rushing travelling carriages, as the fire-king dashes onward in his course, and in about half-an-hour the traveller arrives at the garden of the Luxembourg and the park of Penthievre.

It was a bright clear morning in June, when we alighted from the railway carriage, and found ourselves opposite the pretty little church of Sceaux, and beside the tomb of Florian. It was as pleasant a scene as we had looked upon for many a long day. It was not remarkable for its quietness, however, for on every side men with long whips, which they were cracking merrily, were shouting out with wondrous strength of lungs, a word which with an unwonted familiarity fell upon our ears, "Robinson! Robinson!"

Robinson is a thoroughly English name, and we began to wonder how it was possible for that nomenclature to become by any

means connected with a French town. Who is Robinson? is it no other than our old friend of the naval service, whose name has ever been associated with rapidity of movement; so that to do anything before one can say Jack Robinson has become proverbial? In order to satisfy our curiosity as to this cabalistic epithet, we accepted the invitation of a French postillion, and stepping into a yellow vehicle, half omnibus, half chaise, were off like a shot. The last house in Sceaux was soon left behind us, and we were on the borders of the wood of Aunay, at the foot of the Sablonniere. The scenery is extremely beautiful, and the sudden change which occurs at this spot is no less pleasant than it is surprising. Around is a curious spectacle presented, cabarets, or small drinking houses, built of wood and neatly painted, tables whereat a tired company may lounge and taste the hospitality of mine host, all sorts of objects calculated to amuse a sight-loving people, wooden horses, punchinellos, and the rest of it, and at a short distance from above the surrounding trees, floats in the summer air a flag, and under a rustic porch, daintily composed of branches, we read the word, the utterance of which caused us so much curiosity at Sceaux, in characters of an unmistakable plainness, "*Robinson.*"

Turning the matter over in our mind, and trying to make out some intelligible interpretation for the mysterious cognomen, we bethink ourselves of another Robinson, one Robinson Crusoe, that we so loved in days gone by, and loved in common with all the folk that ever read his history. Robinson Crusoe! the very name sends us wandering into the past, and we remember with what interest we first read that book; the time, the day, the place, the scene, when that wonderful volume first revealed its marvels to us, came back like a flood; there it was, the well-thumbed volume, dog's-eared in many places, marking the seasons when we were



ROBINSON CRUSOE'S CHESNUT TREE.

compelled to relinquish our dear delight, and exchange it for the discipline of school, but dog's-ears that marked also the times at which, in all its bewitching enchantment, the fiction opened out again its marvellous stores. No doubt, said we, this is the neighbourhood of some lake or pool, some little island with its solitary cabin, in which old Crusoe might have dwelt, "the monarch of all he surveyed."

Not so, however. It is on *terra firma*, in a sort of flower-garden, in which small tables are arranged for the accommodation of visitors. The marvel which gives its name to the tavern so strangely denominated is a chesnut tree of very remarkable dimensions, and which on its strong branches supports two stages, covered over, and surrounded with balustrades. These apartments, if they may so be termed, are fitted up as dining rooms, and are reached by a staircase solidly built upon the colossal tree. The dinners are placed in large baskets or panniers, and swung up with a pulley. The novelty of dining in a tree, and enjoying oneself in so romantic a situation, renders a visit to the place a season long to be remembered, and the associations which, somehow, have come to be connected with it, add peculiar interest to the spot. The tree is the desert island, the pleasure-seeker high up among its branches is to realise for the nonce a sense of lonely serenity, and all the marvels of that story of stories, poor Robinson Crusoe, in his nice little, tight little island, come back upon the memory with all their original power and force. Opposite to the arbour by which the garden is entered, a large placard is exhibited, on which is inscribed,—

"Robinson, nom cher à l'enfance,
Que vieux l'on se rapelle encore:
Dont le souvenir, doux tresor,
Nous reporte aux jours d'innocence!"

It is difficult, however, to realise the notion of solitude and innocence amid the incessant clatter of knives and glasses, the impatience of the people in the tree, calling out for their dinners, the constant reply of the waiters from below, "*Voila*," and the unceasing solicitations for money and applause from the wandering musicians and tumblers below, amid the sound of violins, tamborines, organs, and accordions. But the Parisian loves excitement, and carries this love with him into his country trips; he does not desire quietness and repose, he wants the bustle and excitement of the city, the sights and sounds of the town, a Paris in miniature wherever he goes. One looks in vain for quietness in that place which one might expect to be the very abode of solitude; in a spot consecrated, as it were, to retirement, the noisiest bustle and hilarity goes on. You cannot trace the remotest likeness to the solitary abode of the shipwrecked sailor, there is nothing that calls up the idea of his lonely dwelling, his retired life. You do not expect to see him emerging from behind yonder tree, or to encounter the ever busy, ever thrifty Friday; there is too much of the suburban tea-garden about it for anything of that sort, and in the gay gossiping groups there is nothing congenial to solitude. Happily the wood is vast, and the charming landscape opens out before us in long and glorious vistas, and there we may wander where we will, and call up old memories deep and tender, old home thoughts that leave la belle France far behind.

THE DUKE AND THE POETS.

The warrior's laurels have ever been entwined with the poet's bays. The gallant deeds of arms which have distinguished the career of the one have formed the substance of the other's poems. Old Bible heroes had their bravery sung by inspired bards. The soldiers of Greece and Rome became immortalised in poetry. The knights of middle-age renown became the thesis of the minstrel's verse, and it was only the craven-hearted or the cruel whose memory was doomed to pass away, and they themselves to sink into the grave of infamy—

"Unwept, unhonoured, and *unsung*."

Old English ballads tell us of the prowess of the men of mail. Chevy Chase is a specimen. And nearer our own time the fame of Marlborough was popularised by song, and to the memory of Sir John Moore we have one of the finest poems that was ever written in a soldier's honour. Sea songs there are that tell us how admirals, long gathered to their fathers, marched the quarter deck, boarded the enemy,—which *boarding*, by the way, is the most unpleasant sort of thing we ever heard of,—and how they never flinched, but, while with cannon-balls they were shivering one another's timbers, were always in the thickest of the fight. The death of one hero that lies asleep in St. Paul's is commemorated in a well-known song beginning—

"'T was in Trafalgar bay,"

and the memory of another, just taken from us, has already become the subject of innumerable pens.

Wellington and the poets! It was not much that the Iron Duke had to do with poetry in his day. F. M. had something sterner than inkstands and goosequills to do with, something far different from sitting on a chair and making verses—the Duke was as prosaic as one of his own despatches. Bulwer, in his New Timon, describes the Duke thus:—

"Next, with loose rein and careless canter, view
Our man of men, the Prince of Waterloo;
O'er the firm brow the hat as firmly prest,
The firm shape rigid in the button'd vest;
Within—the iron which the fire has proved,
And the close Sparta of a mind unmoved."

The Duke is taken from amongst us—

"Our sky has lost another star,
The earth has claimed its own;
And into dread eternity
The glorious one is gone."

The Duke has departed, and poets sing his praise, a thousand voices break out into metre.

Martin Tupper lays aside all sterner stuff, and lifts his wail of lamentations with the rest. Three-and-twenty verses, of eight lines each, that man of proverbial philosophy sits down to pen; says he—

"How are the mighty scattered,
That have lost their iron lord!
The shield and spear are shattered,
The battle and the sword!
The champion of all Europe's rights
Is gone to his long rest,—
The hero of a hundred fights
With endless peace is blest!

"Arise angelic keepers
That watch the waiting dead;
And turn ye silent sleepers,
Upon your narrow bed;
Arise,—and to those shadowy bands
Make this great spirit known;
The guardian mind of many lands,
The saviour of his own!"

In the *Patriot* newspaper, Josiah Conder sings his quaint stave in memory of the Duke; 'tis strange, 'tis passing strange, how death hallows a man's doings, and with what garlands we may hang the tomb! He says—

"Alas for England's sword!
Alas for England's shield!
The sagest at the council board,
The greatest in the field!

"Mourn for the Iron Duke,
Time honour'd Wellington,
Who meekly bore without rebuke
The laurels he had won."

Even *Punch* forgets to jest, and without one gibe or scoff, without one mocking word, pours out his sorrow with the rest, saying—

"All bring their tribute to his name, from her
Who wears the crown to him who plies the spade,
Under those windows where his corpse is laid,
Taking its rest at last from all those years of stir.

"Years that remoulded an old world in roar,
And furnace fires of strife—with hideous clang
Of battle hammers; when they loudest rang,
His clear sharp voice was heard, that ne'er will be heard more.

* * * * * *

"Peace to him! Let him sleep near him that fell
In victory at the Nile; by Nelson's side
Wellington's ashes fitly may abide,
Great captain—noble heart! hail to thee, and farewell!

From the Tower comes a wail—the Tower which ofttimes echoed to the hero's footfall, from its grim walls comes up a bitter lamentation:—

"Farewell to the chief, who with triumph defended
The ark of his country when empires assail'd;
With the storm they had gathered he bravely contended:
Thro' perils unnumbered he fought and prevail'd.

"Rest be to his ashes, and peace to his spirit!
O'er Wellington shout a dirge due to the brave;
His country for ages to come shall inherit,
The fruits of his valour and hallow his grave."

All our country papers swarm with poems in the dead man's honour; it seems as if every man, woman, and child in the United Kingdom were in league to chant a great national chorus. From Bath, a poet, inspired by seeing the national flag half mast high, addresses it in the following lines:—

"Droop sadly, proud banner! for still'd is the hand
That led thee in victory's way—
The hero, whose might was the boast of our land
Has bowed to a mightier sway!
Yet death has no power o'er the soul-thrilling spell,
That stirs the heart's pulse at his name—
And bright in the records of ages shall dwell
The tale of our Wellington's fame!"

A poetess bewails her country's loss by singing in a mournful and very mysterious way:—

"A nation's weeping—yet, none feel surprise,
That tears bedim its universal eyes!—
A nation's weeping and its COMMON grief,
In this spontaneous outburst seeks relief!—
A nation's weeping—e'en a nation's queen,
Mourns with her people their untoward teen;
Veiling the regal splendour of her eye,
In tears alike of human sympathy!"

what an "untoward teen" is, she knows best; and we confess we cannot for the life of us imagine what may be meant by the "universal eyes" of a nation, or in what manner royalty shows itself in a queen's eye any more than in her nose.

Another poet inquires—

"And art thou gone? the land hath lost in thee
A tower of strength; the vessel now must sail
With broken bulwarks on a troubled sea;
Our sun is clouded and hope's star is pale.

A poet at Bromham tells us, that death cuts down the statesman, and that—

"Now last, not least, a warrior full of years—
A counsellor of counsellors and kings—
At once his country's glory and her boast
The hero of a hundred fights—falls!"

From Nottingham comes up another wail:

"From east to west, from north to south—throughout our British isle,
A still and solemn wail is heard; suppressed is every smile;
The mournful breeze comes sighing from its distant ocean bed,
And whispers in subdued tones, that, Wellington is dead!"

Even the Apollo Glee Club sings out in olden words and olden music

"How keen the brave who sink to rest,
By all their country's wishes blest!

And in our streets and lanes, and courts and alleys, strong-lunged ballad-singers shout out their song of praise, and in their own melodious fashion recount the doing of the mighty dead, winding up every verse with a benediction on his memory—

"The Duke he is dead! God bless him!"

Charles Mackay, in stirring strains, speaks forth the hero's praise:—

"Mourn for the mighty dead,
Mourn for the spirit fled,
Mourn for the lofty head
Low in the grave.
Tears such as nations weep
Hallow the hero's sleep;
Calm be his rest, and deep,—
Arthur the brave!

"Nobly his work was done—
England's most glorious son,
True-hearted Wellington,
Shield of our laws!
Ever in peril's night
Heaven send such arm of might!
Guardian of truth and right;—
Raised in their cause.

"Dried be the tears that fall;
Love bears the warrior's pall;—
Fame shall his deeds recall—
Britain's right hand!
Bright shall his memory be!
Star of supremacy!
Banner of victory!
Pride of our land!"

Truly the pride of our land; his very name a tower of strength, his whole life governed by the strictest regard to duty—not fame, not glory, not self-aggrandisement, but duty in all its stern simplicity and strength—no time, no inclination had he to follow glory, but glory followed him, until he, the great captain of the age, secured the peace of Europe, and rode triumphant on the field of Waterloo. In Wellington, the country has recognised, not only the warrior, but the statesman; and traces the same determined and unwearying spirit in the cabinet as on the battle plain, in the senate and the siege. Looking back upon his course the Englishman is proud of the senator and soldier.

"Take him for all in all, we shall ne'er look on his like again."

Crofton Croker's poetry about the Duke has been brought forth, and is going the round of the papers—it is a fine and able ode, and a verse will not be out of place:

"Victor of Assaye's eastern plain,
Victor of all the fields of Spain,
Victor of France's despot reign,
Thy task of glory done;
Welcome from dangers greatly dared,
From triumphs with the vanquished shared,
From nations saved, and nations spared,
Unconquered Wellington."

This ode was written in 1814. About that same time French nurses scared their tiresome children with the name of the great chief, just as Napoleon was the terror of an English child, was Wellington, the goblin of the nursery—they say that the song, of which the following is a translation—was a far better nursery sedative than Godfrey's Cordial,—

"Baby, baby, naughty baby!
Hush, you squalling thing, I say;
Hush your squalling, or it may be,
Wellington will come this way.

"Baby, baby, he's a giant,
Tall and black as Rouen's steeple,
And he dines and sups relic on't
Every day on naughty people.

"Baby, baby, he will hear you,
As he passes by the house,
And he limb from limb will tear you
Just as pussy tears a mouse."

Poetry in memory of the Duke comes in by shoals to every newspaper and magazine; there is very much that one might laugh at in these uninviting contributions, but the subject is too serious for that. It says something for the Duke, and something for the people, it teaches us, that the dead hero was well beloved by all, and that English men and English women are ever willing to testify their gratitude and love. The Duke is dead,

"Mourn ye for him; let him be regarded
As the most noble corse that ever herald
Did follow to the urn."

THE FAMILIES OF PLANTS.

VALERIANEÆ.—THE VALERIAN TRIBE.

Ovarium cohering with the tube of the calyx. Corolla inserted into the top of the ovarium, tubular, usually five-lobed. Stamens ordinarily less numerous than the lobes of the corolla. Seed solitary and pendulous. Embryo straight. Radicle superior.

These plants are natives of most temperate climates; sometimes at considerable elevations. They are abundant in the north of India, Europe, and South America, but uncommon in Africa and North America.

The roots of some of this tribe are tonic, bitter, aromatic, antispasmodic, and vermifugal; they are even said to be febrifugal. The scent of the root is not agreeable to Europeans, yet those of some species are highly esteemed as perfumes. Such is the case with the *celtic nard*, or nard valerian, a native of France, Italy, and Switzerland (fig. 230). The roots, which are black, are imported from the mountains of Austria into Egypt, whence it has been carried into Asia and Africa. Valued by the Orientals as a sweet-smelling drug, it is much used, especially in Egypt, for perfuming the baths, in which the people of that country pass so much of their time. Some botanists think that the spikenard of the ancients, described by Solomon as "sending forth a pleasant smell," as well as a fragrant nard used by the Hindoos, is the root of a plant of the valerian family.

The *centranthus rubra*, or red valerian (fig. 231), is very common in our gardens. But to one colour it is not restricted; varying as it does, from crimson to the palest pink, and even to a pinkish or yellowish white. A great number of small flowers compose its large clusters of blossoms, which are to be seen through all the summer months, and even so late as September. The root of the common wild valerian is cultivated in Derbyshire, for medicinal purposes.

CAPRIFOLIACEÆ.—THE HONEYSUCKLE TRIBE.

Calyx adhering to the ovarium. Corolla of one piece, lobed, sometimes irregular; the divisions alternate with those of the calyx. Stamens inserted on the corolla. Ovarium cohering with the tube of the calyx, commonly three-celled. Seeds solitary, in pairs, or several, some often abortive, in each cell, pendulous. Embryo straight, in the centre of a fleshy albumen. Radicle superior. Leaves opposite, commonly without stipules.

These plants, natives of the northern parts of Europe, Asia, and America, pass downwards within the limits of the tropics, are found very sparingly in northern Africa, and are almost unknown in the southern hemisphere.



VIRGIN FOREST IN NORTH AMERICA.

Well known to us is that delicate-flowered shrub, the honeysuckle, or woodbine, once fixed, be it only to a shattered oak, or a decayed beam, there it will keep its hold, adorning it with beauty, and scattering around its fragrance. Other plants are only associated with splendid piles and gay and gorgeous parterres, but this favours specially the humble dwelling.

> "By stately halls we see thee not,
> But find thee near the lowly cot.
> A latticed porch—by humble door
> Thou leanest with thy honied store;
> Dropping from thy bee-bosomed flowers,
> Sweetness through evening's dewy hours.

Tree of the cottage and the poor!
Can palaces of the rich have more?
No; sweet content as seldom dwells
In palaces, as lowly cells."

Fig. 230.



Valeriana Pyrenaica.—Valerian of the Pyrenees.

In hedge-rows and cottage-gardens, too, as well as on cliffs, rocks, and ruins, we find the common elder (fig. 232), with its white fragrant flowers, and round purple berries. The former

Fig. 231.



Centranthus Rubra.—Red Valerian.

are used to make a useful ointment, and the latter are employed for wine.

Cowper speaks of

———"The snow flower tall
Throwing up into the darkest gloom
Of neighbouring cypress, or more sable yew,
Her silver globes, light as the foaming surf,
That the wind severs from the broken wave."

Fig. 232.



Sambucus Nigra.—Common Elder.

Such is the guelder rose (fig. 233), when cultivated in our gardens. But it grows in its native wildness, in woods and hedges, where its white flowers change, in due time, into red berries.

Fig. 233.



Viburnum Opulus.—The Guelder Rose.

RUBIACEÆ.

Tube of the calyx adherent with the ovarium. Corolla monopetalous. Stamens as many as the lobes of the corolla. Ovarium adherent, usually two-celled, or with several cells. Seeds one, or many in each cell. Embryo straight, or slightly curved, inclosed in the albumen. Two stipules at the base of each leaf.

This is one of the most copious and interesting orders to be met with in the whole range of botanical science. It presents to us a magnificent assortment of genera, distributed over all the parallels of latitude within the torrid and temperate zones, related to each other by points of great simplicity. Among these, the widely circulated fame of some of its members establishes its claim to the highest medical reputation. Such are ipecacuanha and Peruvian bark.

Ipecacuanha is the root of several plants, growing in South America. All the kinds have nearly the same ingredients, but differ in the amount of the active principle they contain, called *emeta*, or *emetine*. The best is the annulated, yielded by the *cephaelis ipecacuanha*, a small shrubby plant, a native of Brazil, and of New Granada. Of this sort there are three varieties,

Fig. 234.



Cinchona Calysaya.
1. Flower. 2. Flower, cut vertically. 3. Pistil.
4. Fruit. 5. Seed.

namely, the red, the brown, and the grey, or grey-white, called also, greater annulated ipecacuan. Besides these, the roots of numerous other plants are used in tropical countries as emetics, and are often termed ipecacuan.

Of the *quinquina*, or Peruvian bark tree, there are many varieties, among which are the *cinchona calysaya*, and the *cinchona micrantha* (figs. 234, 235). The little town of Loxa has given its name to one of the most efficacious of all fever barks—the *quina*, or the *Cascorilla fina de Loxa*. The story which sets forth, that the natives learned the virtues of this plant from "the lions, who cure themselves of intermittent fever by gnawing the bark of the quina tree," is considered by Humboldt, to be merely a monkish fiction, and wholly of European origin. No such disease as the lion's fever is known on the New Continent; for the so-called great American lion, and the small mountain lion, the Puma, whose footmarks that distinguished traveller had seen in the snow, are never tamed, and consequently never become the subjects of observation. Nor are the various species of the feline race, on either continent, accustomed to gnaw the bark of trees.

Peruvian bark is said to have been brought to Madrid in 1640, when the Countess de Chinchon, the wife of the Peruvian viceroy, arrived from Lima, where she had been cured of an intermittent fever. Hence the name given to the plant, and frequently used by botanists, of *cinchona*, and the more popular one of "Countess's Powder," which has been applied to its produce. The trees which yield the bark, grow at the moderate elevation of 5755 and 7673 feet above the level of the sea, nearly corresponding, respectively, with the heights of the hospital on the Grimsel, and the Pass of the Great St. Bernard.

The tree is felled in its first flowering season, in about the fourth or seventh year of its growth, according as it may have been reared from a strong shoot, or from seed. "The febrifuge bark-hunters," as those Indians and Mestizoes are called at Loxa, "collect annually the most efficacious of all the medicinal barks, the *cinchona condaminea*, among lonely mountains, and undergo considerable danger in climbing to the summits of the highest forest trees, in order to obtain an extended view,

Fig. 235.



Cinchona Micrantha.

from which they may distinguish the scattered, slender, and aspiring trunks of the cinchona, by the reddish tint of their large leaves.

In the family of the Rubiaceæ we also find a tree (fig. 236), the produce of which is coffee; a native of Caffa, in Arabia; but now extensively cultivated in the southern extremity of India, in Java, the West Indies, and Brazil. It will grow to the height of sixteen or eighteen feet, but it is generally stinted to that of five feet, for the convenience of gathering the fruit. The stem is upright, and covered with a light brown bark; the branches are horizontal and opposite, crossing each other at every joint, and forming a sort of pyramid. The flowers grow in clusters at the root of the leaves, and close to the branches (fig. 237); they are of a pure white, and of an agreeable odour. The fruit, which is a berry, grows in clusters, along the branches, under the axils of

the leaves. The best coffee is that named Mocha, from Arabia Felix.

In this family is found the madder, a well-known dye; it is the produce of the *rubia tinctorum*, which stands as the head and representative of the whole family, and takes its general denomination from the relationship which the other members have to this plant. Nor should the elegance of the foliage and the fragrance of the flowers of this family be overlooked. From those minute specks which appear in the mighty expanse of the Southern Pacific, the *gardenia*—a genus of beautiful and evergreen shrubs—breathes a delightful perfume to welcome the seafaring man as he approaches their coral shores; while every grove and thicket in the larger islands, present fresh specimens of this diversified family.

Fig. 236.



The Coffee Tree.

The English plants which belong to it are of a very humble description. The flowers are small, and white or yellow. The most common example is the cleavers, or clivers, found on every ditch bank throughout the summer. It is often employed in medicine by the London practitioners, who employ persons to collect it from the fields. The *galium cruciatum*, or yellow-crossed wort, and the *galium saxitile*, found on heaths, and remarkable for its weak, straggling flowers, may also be mentioned; as well as the madders, one of which is called the little field madder.

LOGANIACEÆ.

Corolla hypogynous, regular or irregular. Stamens inserted on the corolla, five or one. Ovarium free, two-celled; ovules indefinite. Fruit various. Seeds pellate. Albumen fleshy, or cartilaginous. Leaves entire, opposite.

These plants are found in India and Africa, and in the temperate parts of New Holland, of which we give an example in the *strychnos ligustrina* (fig. 238).

Strychnine is a vegetable alkaloid, the sole active principle of *strychnos tieuté*, the most active of the Java poisons, and one of

Fig. 237.



Branch of the Coffee Tree.

the active principles of *strychnos nux vomica*. It is colourless, inodorous, crystalline, unalterable by exposure to the air, and extremely bitter. It is very insoluble, requiring 7000 parts of water for solution. Strychnine and its salts, especially the

Fig. 238.



Strychnos Ligustrina.

latter, from their solubility, are most energetic poisons. They produce lock-jaw and other tetanic affections; but are employed in very small doses as remedies in paralysis.

THE CALORIC SHIP "ERICSSON."

We live in an age of marvels. We begin to be surprised at nothing, every day brings with it something that would have shaken their faith and been scoffed at as an idle notion of some idle brain, by our ancestors eighty years ago. It is a wonderful thing to intersect our country with broad and narrow guage, to harness to a train of well filled coaches, and huge vans of luggage, an iron courser, snorting and belching out his fiery breath, a steam horse that travels over the country at an amazing rapidity, and proclaims his coming with the shrillest cry. It is something wonderful to go right upward in the clear blue sky, attached to a silken bag quite filled with gas, and from the car look down upon the host of upturned faces, that by and bye are lost in a dark mystery of trees, and roads, and parish steeples, bridges, and fields, and the rest of it. And wonderful is it to talk by electricity, to make the lightning our postman, and over the magic wires send to friends far off our hopes and fears, and joys and sorrows. All this is wonderful, but the chapter of marvels is not over yet.

The *New York Independent* contains an article by the well-known congregationalist of Brooklyn, Henry Ward Beecher, brother of the celebrated authoress of "Uncle Tom's Cabin," on the caloric ship "Ericsson." The secret of the new agency by which this vessel is propelled is simply the application of the principle so well known, of the compressibility of the air. In the Great Glass Hive in Hyde-park, Mr. Parsey exhibited a compressed air engine, which illustrated the principle, and to which reference has been made in the first volume of this work.

The "Ericsson" is externally a first class steamship, perhaps a trifle neater, trimmer, and more graceful than usual; seemingly a steamship,—the same contrast of black and gold, the same high-arching paddle-boxes, revealing the red iron wheels and floats, the same half-way preparation for canvas. But really and within, what strange work! No steam, and no boilers to make steam, and no place to put them if they were wanted. No smoke, and no chimneys worth naming. No more hiss and roar, no more explosion. Hereafter all is to be dry and still. This is the caloric ship. A costly experiment truly, and, if successful, destined to work an entire revolution in mechanics, nothing less than an entire disuse of steam as a motor. There is something sublime in the daring displayed in this undertaking; a single invention entering the lists and challenging the perfected work of ages. The daring wins attention, and commands intensest interest. The marine steam-engine is the result of years of experiment and study, and consequent progress. A very few years ago no work-shop in the world would have dared to undertake such massive work. Castings of 40 tons weight, and complicated to the last degree; shafts of wrought iron welded up big as a pine tree; cylinders large enough for a comfortable bedroom. Had any man dared devise the works and execute the drawings, no shop could have satisfied the conditions; but now, by short, and slow, and easy steps, every dimension has been increased inch by inch, until at last our engines seem like the very wheels and machinery of nature. We build iron caverns, pour in an ocean, and set them over volcanoes, and modestly call them boilers and furnaces, as it were a mere device to boil eggs withal. A pair of first-class side-lever marine engines, slowly swinging their immense proportions to and fro in ponderous silence, approach as near to sublimity as it is lawful for the work of man to come. He that can look upon them with no emotion of awe, and no thrill of apprehension, will do well to be anxious at once about his soul. Notwithstanding this, and unabashed by the imperial renown and majesty of the modern engine, there is come an unknown champion into the lists to dispute the empire and claim the first rank to itself. Not by slow steps of progress does it propose to rise to dominion. Not by a long apprenticeship or slavery to pumps, mills, ferries, and river boats, the steps by which steam attained to royalty,—not so will the caloric engine win its way. All or nothing. All at once, or nothing. And so the hull is builded and launched, such a hull as has never before been set afloot for beauty, strength, and costliness. Her register is over 2,000 tons. There are not ten steamers in the world larger than she, and not one of equal workmanship in respect of seaworthiness and strength. Her engines are built with the same elegance and precision that we should anticipate were they the fiftieth instead of the first of their kind.

That the caloric engine has peculiar and highly desirable advantages cannot for an instant be doubted. The machinery is far more compact than is possible in an ordinary steam-engine; and economy of space has been attended to withal, which is a matter of very great importance in steam navigation. Then, too, the vessel is free from the danger of explosion and accident; it at the same time secures an incidental ventilation of the entire ship, since it is proposed to draw the supplies of air from the ship's hull; the cost, moreover, is considerably less than the common price of a steam-engine with its boilers; it also requires but a fifth of the ordinary crew; and is lastly and chiefly remarkably economical with respect to fuel. But much of this is still in doubt, much of this remains to be proved. "Will the engines fulfil the inventor's expectations? Will they work? A tough question. The writer cannot hazard an opinion, not having seen the soul of the invention, 'the regenerator,' as the inventor has christened it, an attachment sustaining the same relation to a caloric engine that a 'condenser' does to a steam-engine. There is no question as to whether air will expand by heat; expanding, it will drive a piston, no doubt; about these elemental postulates there can be no question. Moist air will expand by higher ratios than dry air; but even dry air will increase its volume over 10 per cent. by receiving 90 degrees of heat; ordinary atmospheric air increases its volume 50 per cent. between zero and the boiling point. But the question, 'Can air be quickly heated and quickly cooled; can it be made to shrink in the cylinder instantly, as steam does when it escapes into the condenser?' —this is a question which the writer cannot answer. Captain Ericsson's 'regenerator' is intended to accomplish this. It is to heat the air as it rushes into the cylinder, and cool the air, or receive back the heat, all but 34 or 40 degrees lost by radiation, as the air makes its escape. Furthermore, it is to discharge this office promptly, instantly, so that the slenderest volume will, on entering, become round, and stout, and portly as an alderman; but, on retiring, unlike the alderman, will disgorge its gettings, and go forth slim as it came, and leave its heat and sudden portliness for the next occupant. The furnaces have need to supply only the little loss of 30 degrees or so out of 400 or 500 which the air receives by inheritance from its predecessors merely the leakage by radiation. Such claims as these excite scepticism. They do not necessarily involve an absurdity, and if the 'regenerator' will do what is claimed to be doing already in an experimental engine, then beyond a question the caloric engine will work, and the days of steam are numbered. A few weeks will settle the question. The 'Ericsson' is afloat, and her engines are well nigh complete. Expectation is on tiptoe."

The editor of the *New York Home Journal* talks eloquently about the wonders of the new invention, and tells us how the caloric engine burns about one-tenth as much fuel as a steam-engine; and how hence a caloric ship of the largest size may circumnavigate the globe without stopping to take in coal; and not a sail will ever be seen on the ocean in fifty years after the success of the new principle is certain; how machinery will be applied to a thousand arts which now require manual labour; hence the possibility of the machine plough; and hence the coming of that good time when arduous manual toil will absolutely cease under the sun; how no smoke whatever will issue from a caloric furnace when anthracite is used, and consequently no huge, unsightly smoke-pipe will be necessary, and the rigging will be as clean as that of a sailing-ship; how there can be no bursting or collapsing of boilers, for the simple reason that there will be no boilers to burst; the worst accident that can happen to a caloric engine is for it to stop; nor is watchfulness imperatively required, as in no case can a dangerous accident occur; and how, owing to the extreme simplicity of the caloric engine, the wear and tear will be very slight, and the duration of the engines proportionally long. "And the reader," says the editor, "must bear in mind that these are not merely the confident anticipations of an ardent inventor. Two engines on the caloric principle already exist, which work to admiration, and which may be inspected at the workshops of the manufacturers."

AUTUMN.



AN AUTUMN SCENE. FROM A PAINTING BY BARON.

Autumn wears very different aspects to different people. To the country gentleman it brings visions of clear frosty mornings, heavy lying scents, firm and open fields, bracing air, and all the rude excitement of the chase. The town sportsman prepares for it, by creeping from the Albany to Regent-street, ordering home a pair of "Bluchers" with two or three lairs of sole, and a pretty bag, and either going down to "that place of his uncle's" in the country, or else hiring the "exclusive right of shooting over one hundred acres of moor in the midst of a sporting country,"—and as soon as town begins to get dull, orders his "fellow to pack up his traps," and takes his departure. To one of the "highest personages in the realm," Autumn means: Balmoral, [deer-stalking, a "gathering," at which certain athletic individuals with bare legs, execute various fantastic gyrations, and certain young masters and misses invariably present bouquets to certain young princes and princesses,—and quiet evenings in a home which all the world believes, and this time rightly, as happy, as pure, and as loving as any English home can ever be; and this is saying a great deal.

To the ministry, Autumn means the prorogation of parliament, no more late hours, no more inquisitive and impertinent deputations, requesting the reduction of duties which they, benighted individuals, are now informed are exactly those which, in the present posture of affairs can on no account be reduced, and which, even if affairs changed their posture, could only be reduced after grave and careful consideration, mixed up with very much doubt whether a due regard to the present interests of the nation would permit of their reduction upon any terms whatsoever; no more troublesome references in the house by the low person Smith (a rank red republican, if the truth was known), to confiscation of the property of British subjects abroad, or the ransacking of Englishmen's houses by gensd'armes, or the splitting of Englishmen's heads by Lieutenant Krummachen Krauchekratz, (Smith evidently not being aware that the amicable relations existing between distinguished individuals cannot be interrupted by matters of such trifling importance, is crushed by being informed, that, having no official information on the subject, the Right Hon. the Chancellor of the Exchequer, doubts very much whether Smith knows anything at all about it, and that at all events, he (Smith) has told the story in such a very confused, vague, and imperfect manner, that he (the Chancellor of the Exchequer) can make neither head nor tail of it; "no more chops bolted" hastily at Bellamy's, and bottles of port to keep up the excitement; no more long-winded speeches intended to mean as little as possible, for when one means anything, he often commits himself.

With Autumn comes rest. The student escapes from his books, the merchant from his counting-house, the lawyer from his briefs, quiddets and quirks; all, who can, abandon the town, and fly all over the earth for two or three months' freedom from care. The rust of the other nine is swept away by the soft breezes of the south, and the calm and bloom of health is brought to fevered cheeks, by the bracing air of an English sea-shore. But Autumn comes not thus laden with pleasure and happiness to all. The poor man in the crowded alley knows not of the close of the season, or the commencement of the "long vacation." *His* "season" lasts for ever; *his* "term time," knows no close; Autumn brings to him no merry green woods, no resounding surge beating on a sunny shore, no walks on the beach with happy friends, no country reunions; but one long year of ceaseless toil, relieved perhaps by a jaunt in a van to Epping Forest. So that it is to the minority, after all, that Autumn is a season of pleasure; to the mass it wears a threatening aspect. It falls heavily upon the thinly clad, and pierces them through and through, while winter stands behind with still a fiercer look. The keen mornings of October, that gather the poor workman's family shivering around the half-empty grate, and make coals a necessary of life, make a sad inroad upon his scanty wages. To the poor wanderer also, who spends his days in earning a scanty livelihood through the streets, and too often finds no resting place at night better than an archway or a door-step, Autumn is a word of terrible meaning; and to all upon whom life's burdens fall heavily, who know no cares beyond the semi-barbarous struggle to keep soul and body together, the departure of the summer can leave but little behind to make the heart glad, save it may be one or two sweet remembrances.

In all countries, however, and particularly in England, there exists a large number of people well to do in the world, *les classes aisées*, who hail the fall of the leaf with unmingled pleasure. The turmoil of fashionable fatigue is over, the opera is closed, and town is empty; and then the country houses of the nobles and gentry fill with the young, the gay, the witty, the highborn, and the beautiful. The days are passed in rustic pleasures, rides along the open meadow, rambles by the stream, pic-nics in the woods, music in the evenings, smiles, and wine, flirtation, gaiety, and frivolity.

It is at this side of Autumn that our artist has glanced—a life, refined, elegant, and idle. All the appliances and accessories which can make country life delightful, are here grouped together in one rich ideal, an aristocratic Eldorado, a noble Arcadia adorned by lordly mansions, and peopled with titled dames and puissant seigneurs, resplendent with gold, purple, and brocade. Grouped in elegant *poses* on a magnificent bridge, the guests of yonder villa are seeking to put their arch enemy—Time—to flight. One or two of the gentlemen are lazily fishing with a line—gold-fish without doubt; we can hardly suppose that this lordly stream could harbour any more vulgar tenants within its marble banks.

The reader of "Coningsby" may fancy plots for the overthrow of parties, or the humiliation of opponents, and all the chicanery of political intrigue at full work in scenes like this, if we but transport our thoughts two or three centuries back, to the period which the costume seems to indicate. Vices and meanness are not banished from the haunts of gaiety, but neither are virtues repelled by the *dolce far niente* which our artist has endeavoured to depict. Perhaps of all seasons of the year, Autumn is the most acceptable to that class of society known as "sentimental," and who delight in that species of versification known as "namby-pamby." Young ladies and gentlemen who rejoice in the possession of "blighted affections" and "seared hearts," who have had the misfortune to meet with personages who did not "understand them," at which we are not at all surprised, are fond of comparing their position and prospects with those of "a sere and yellow leaf," destined soon to fall and be forgotten.

It is in autumn scenes, therefore, that the second-rate novelists usually place their heroes and heroines, in the chapter immediately following that in which the blighting disappointment, the utter and irretrievable ruin, the breaking of the heartstrings, the downfall of all hopes, have been fully and explicitly set forth. The youthful Trevilyan Travailleur walks forth through his ancestral woods, soon alas! to be his no longer; it is Autumn, the leaves strew the ground, then follow the reflections. Or the Grace, or the Kathleen, or the Emily is, mayhap, taking a ramble in an uneuviable state of mind—looks up, sees the grey clouds coursing along the sky—such is her life, &c. &c.; returns to the house, sadder, but wiser.

But these are the caricaturists of the best feelings in the human heart, and the grandest scenes in nature. To every well regulated mind there is undoubtedly in this season, of all others, something strikingly impressive. Like all the other works of God, it has its lessons, deep, and solemn; but to read them aright needs a heart of hope, and courage, an eye of faith, and rooted love of nature. Truly, we all do fade as a leaf.

Autumn comes nowhere without bringing with it solemn musings, and happy meetings. She is not all shadow and decay; and if our thoughts dwell with some practical purpose upon those less favoured mortals to whom all seasons come alike, it is not amiss that we ourselves should seek to protract through gloomy weather, and under a sky already grey and lowering, the summer sunshine of the heart. Let us receive Autumn as the poet describes her—

> "With golden sheaves and laden boughs she comes,
> Bringing contentment in her smiling face. The day
> Is hot with sunshine labour, and the night—
> Is merry with the joy of harvest homes.
> The year is almost ended: 'tis well to be so gay,—
> Days darken, shadows lengthen—so pass our lives away."

DEOLS.

Memory is the mind looking back, and history is the memory of the world. History is the student's telescope, which brings all distant objects near; it is the realization of the negro wish-land, for it takes us to all places and to all times. It introduces us to all society, puts us into all sorts of new positions; we are alternately the soldier, the statesman, the conqueror, the vanquished; alternately a denizen of temperate Europe, shivering with the Laplander, or journeying in the desert beneath the red-hot broil of a summer's noon; sometimes paying homage to a Christian hero, sometimes to a Pagan warrior, sometimes to a stern Republican, sometimes to a tyrannizing Czar; there is hardly any other study so versatile and yet so complete, so different and yet so connected, —for looking back upon the joys and sorrows, the conquests, the triumphs, the glory, the despair of ever struggling humanity, we see in them all great designs continually evolving, and the strictest unity preserved.

To the mind well stored with historical records, to whom the past is no blank, but alive with all the passions and principles of man, every monument, every ruin has its own peculiar associations, the Meccas and Medinas of departed genius, the consecrated ground of heroism and right-doing. Such an one can never travel from Dan to Beersheba, and say it is all barren, for every step of the way is prolific in bygone stories. We hustle and push our way through crowded city streets, and forget that here a martyr suffered, and there a hero bled, or that some quiet soul was working out a world problem in yonder dingy-looking house,—which problem by-and-by was solved, and turned the world upside down. The most memorable spots are not the most remarkable in their outward shape. There is seldom any striking peculiarities in the natural aspect of the place. And they need it not. Like the men who have there wrought for the good of all, they do not strike the beholder with awe, and do not seem to bear upon their very front an impress of greatness. It is thus we feel the power of the mind of man above all natural objects, that little understood but wondrous power which in the great and good has ever developed its own catholicity.

How an old coin will set the mind a wandering. We are not ashamed to pore over an old medal, and by dint of hard study to decipher its meaning. Some go-a-head people sneer at these things, and rejoice in droll stories of how antiquaries were taken in and done for; but they forget, that in sneering at the work of the antiquary, they scorn one of the ablest helps which we possess in historical investigation. Progress as we may, the world's history is not all to come, there is a past as well as a future, and mightier truths and lessons more solemn to be gained from the experience of ages than from any novelty that ever loomed in an "illimitable perspective." Talking of old reminiscences which localities suggest, we cannot help referring to those spots which, consecrated by some great or noble struggle, or from having been the birth-place or the death-place of one of the world's heroes—have become the puppet-shops of a money-loving people. A show place of the great and good is an abomination. All the interest attaching to the spot is gone at once, if a cicerone will go round with us to show its lions. At Lake Leman, the residence of Byron has become such an establishment, and they show you the room in which he wrote some of his finest poetry. But the charm of the thing is gone. We do not want to know what our hero took for breakfast, nor what shoes and stockings he wore.

The traveller in France is perpetually meeting with objects which suggest a thousand fancies of the old, old time. Here, a church celebrated in history; there, a dismantled tower; here, a river made famous by some gallant act; there, a field, which from having been the scene of some fearful deed becomes a field of blood; here assembled the gay demoiselles and gentlemen that made up the court of the grand monarque; there lies the Field of the Cloth of Gold, where met King Hal and Francis, in the good days of old; here first dawned the light of Hugunot reformation; there burst out the fire of revolution; here Philip Augustus assembled his chivalrous host; and there a mightier than he led forth another and a mightier host to mightier conquests.

In journeying in the department of Indre, the traveller would do well to turn aside and visit the tower of Deols. It is a strange old ruin, overgrown with ivy and other creeping plants. The ancient city of Deols is situated on the right bank of the river Indre, and was formerly one of the most considerable in Lower Berry. It is now a vast ruin, the scene is a wreck, the walls cast down, stones covered with moss, half-consumed timbers, and everything which indicates the march and devastation of a ruthless army. There is still preserved an ancient chronicle, written by one of the monks of the ruined abbey, which tells how St. Ursin preached the gospel to the inhabitants of Berry in the fourth century, how Denis Gaulois, who owned that portion of the country was more than six feet high, and more than a hundred years old, how this man had by his prowess delivered the country from wild animals, and how one night a vision was sent from heaven, and he was bidden to accept the gospel, and consecrate himself and children to the service of the Saviour, and how he did all this, and how he changed his name to Leocade, and built a church, and founded a city. That, says the legend, was the beginning of the city and abbey of Deols. Its history goes on to tell some wondrous stories of its early existence, and how in the ninth century it was totally destroyed, but rebuilt again not long afterwards; how it was besieged in 1076; how in 1152, a great portion of the city was destroyed by fire; how Philip Augustus took it from the English in 1187; and how in the sixteenth century, Catholics and Hugunots contended for its possession. There is many a curious story about its old walls, and it well deserves a visit from the tourist.

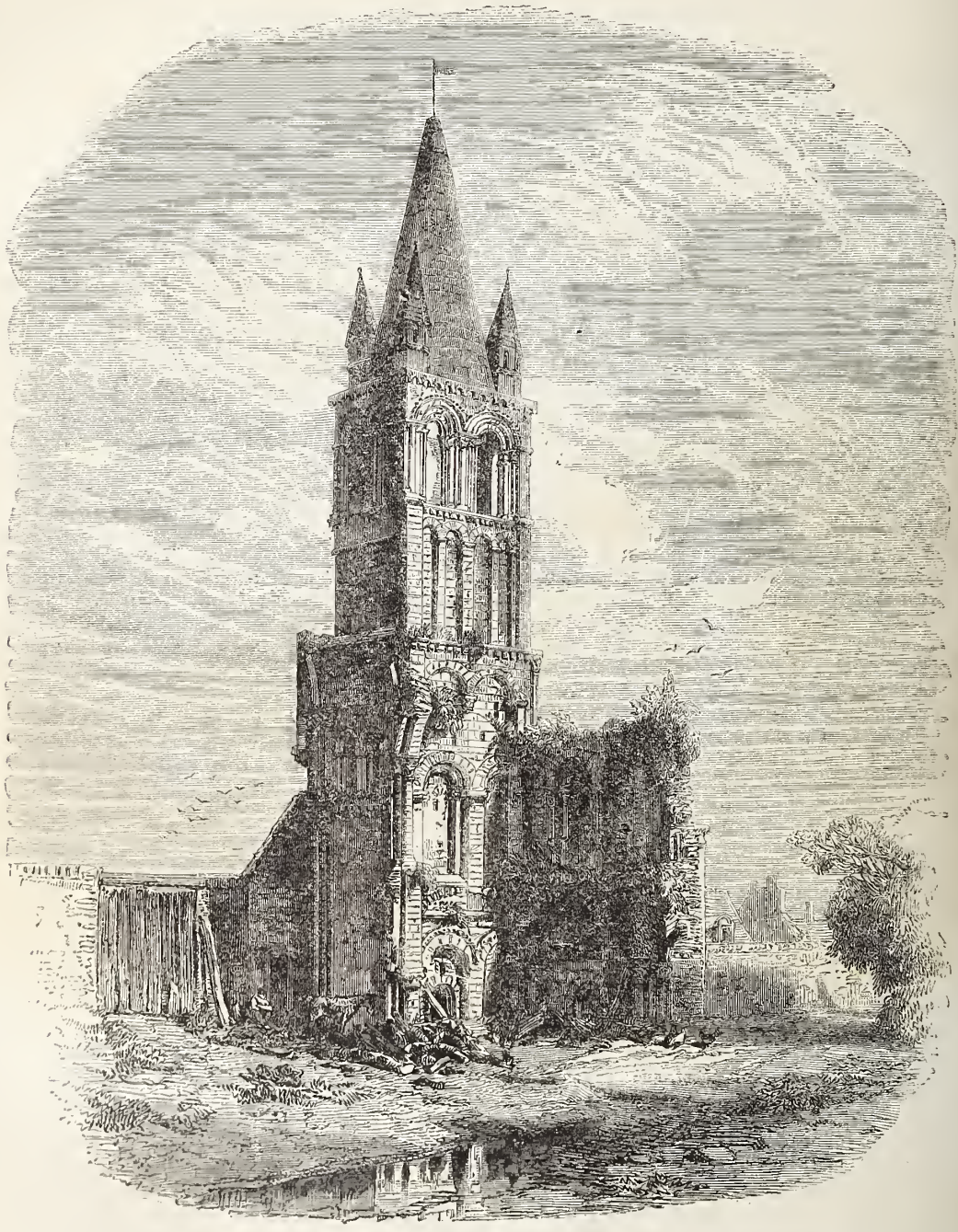
It is in scenes such as this that one may give wings to the ideal and the imaginative. There the fancy rebuilds the ruined structure, and fills it once again with groups that have long since passed away. The solemn strain of a worshipping host once more arises; the throng are bending down in homage; the priests in costly robes are standing before the altar; the squires and knights are there, and banners are unfurled. So wandering onward among the ruins of the church, the mind begins again to people it with another and far different company. The stern Hugunots are there, the men who struggled for their faith and sealed with blood their testimony. Widely different, indeed, was that struggle from that which was begun and carried on in Germany by a few thoughtful men. The people south of the Loire were an ardent and imaginative race. True children of the sun, they seemed to have imbibed in their natures some portion of the fiery heat which ripened their grapes, and warmed their secluded valleys. Passionate in their love, deadly in their hatred, too proud to want candour or generosity, and too sincere to overlook fraud, chicanery, or deceit in others, they supported and carried out any principle which they embraced, with a fiery and terrific energy. Clinging to the memories of old Rome, they at an early period sought relief from the violence and barbarism which overspread Europe at the fall of the Empire in the charms of music and poetry, and the elegant pursuits of literature. Long before any of the languages of modern Europe had assumed any better form than that of a harsh and irregular jargon, they had framed from the remuants of the Latin, a symmetrical and harmonious tongue, in which to sing the beauties of their lady loves, or chant the exploits of their chevaliers. When the Reformation began to spread in Germany, France was not slow in furnishing her quota of help to the cause, and entered upon the arena with a fiery zeal of which we, born under the cold skies of the north, know nothing. There occurred one of the strangest contests which the world has ever seen in modern times. The wealth, the learning, the traditions, the princes, the nobles, the armed force of all Europe, on one side, and a few students and peasantry on the other. But the history is a sad one, a record stained with blood and tears. The neighbourhood of Deol is all the scene of that latter struggle which, provoked by the tyranny and oppression of the old regime, broke out in '89. There the fierce struggle raged, as well as elsewhere. There the *bonnet rouge* was carried in high triumph, there liberty grew clamorous, and herself became tyrannical, and there reason grew phrenzied and lost at last her

wits. All these thoughts come back upon us as we visit the ruin of the once well-populated city, and leaving the noisy present, we wander for awhile in the dim and shadowy past.

Thus it is that old memories are ever clinging around the monuments of a bygone age. Thus regarded, every ruin is something more than a building overthrown,—it is consecrated by the genius of the past, it is associated with the doings of the great and good, whose lives stand out conspicuously upon the page of history. Ichabod is written on these ruins, and it sets one a-thinking about the ceaseless mutation which is ever going on about us.

One of the most interesting curiosities at Deols is a curiously-carved sarcophagus. The tomb is of white marble, and is ornamented in bas-relief, in the Gallo-Roman style, together with a fresco of an earlier period, representing in one part scenes from the chase, and in another the duties of Christian life. The style of architecture which the abbey exhibits is that of the period when the Roman style prevailed in France, and is supposed to have been erected about the middle of the eleventh century.

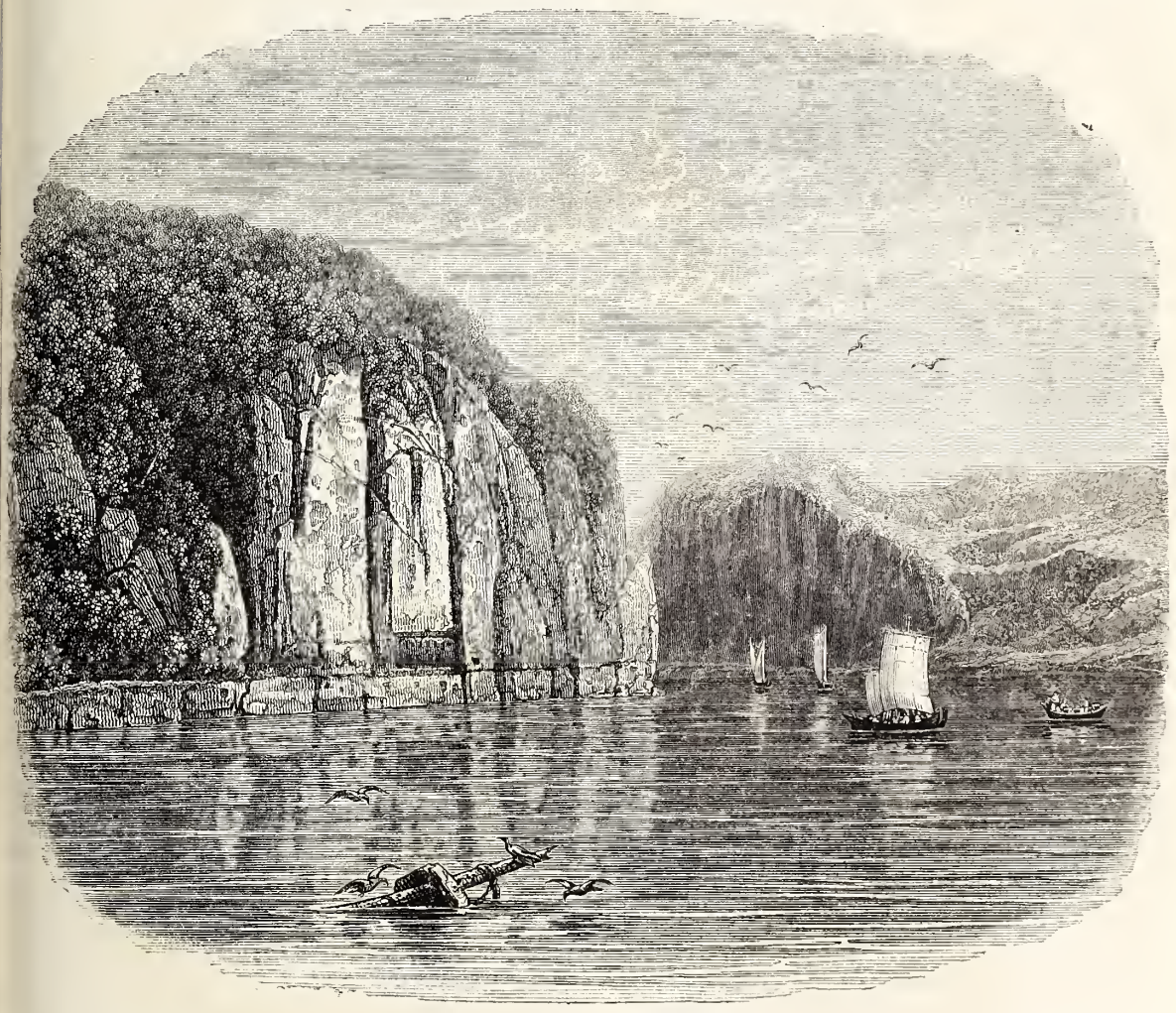
Châteaucroux, about a mile and a half from Deols, is of but little interest to the traveller, but of considerable industria importance, owing to its extensive cloth manufactures. The wools of Berry are almost exclusively used in their fabrication; some trade is also carried on in iron, there being more than forty iron furnaces in the department. The castle, on an eminence above the Indre, is a gloomy building flanked by turrets. It was the prison, for twenty-three years, of the unfortunate Clemence de Maillé, Princess de Conde, and niece of Richelieu, who there ended a life of suffering, 1694. The town owes its name to an old *chateau*, built in the 10th century, by one Raoul, of Deols. One of the two gates, a venerable structure, still remains.



TOWER OF DEOLS.

TRAJAN'S TABLET ON THE DANUBE.

The great rivers of America, certainly, occupy a larger space than the Danube upon the map of the world; but they have not attaching to them the same interest, either to the enquiries of the antiquarian, or the imagination of the poet. The Danube is rich in historical associations and in romantic legends of the past. Napoleon called it the king of European rivers, and it well deserves the name. It is the chief river of Germany, and is second to none in Europe, save the Volga. The Danube is distinguished from the Rhine by its vast forests, feathering down to the water's edge from the summits of high mountains, which confine the river on both sides; and in addition to the picturesque ruins of ancient castles, it is diversified with numerous monasteries, palaces in extent and splendour, and mighty monuments of ecclesiastical wealth and power.



THE TABLET OF TRAJAN ON THE DANUBE.

That part of the river which meets the traveller, after rounding the point crowned with the tripled-towered castle of *Tricula*, stretches out in a broad lake-like expanse. The white chalk-like cliffs of limestone flanking the entrance to it are visible at a great distance. Until the construction of the new road all communication along the banks of the river ceased here. The new road passes through a defile, blasted for in the limestone. The interest attaching to the scene is increased by the mementos which still remain of old Roman glory. The people of the "seven hills" have left their traces everywhere, and the "finger marks," as they are called, on the wall for seventeen centuries have been visible. The objects alluded to are the long groove or ledge, and the line of square holes beneath it, running along the face of the abrupt rock which forms the Servian banks. These are the sockets in which beams were inserted to support the *via Trajana*. "Never," says one, "did I more strongly feel the greatness of the Roman people than when on sailing down the Danube, I first observed the traces and comprehended the object to which this work was destined." These marks are visible, though not without interruption, from Babacæj, below Skela Gladova, but are nowhere so conspicuous as at this spot. The old road, doubtless, served as a towing path, but was at the same time passable for beasts of burthen. It was nothing more than a wooden shelf, supported by beams, inserted in the sockets cut in the rock. As the river spreads out before old Gradina, the rocky wall on the right bank bears an inscription in honour of Trajan. The tablet is supported by two winged figures with a dolphin on each side and is surmounted by the Roman eagle. It has been defaced by time, but the following letters are still legible:

IMP. CAESAR DIVI. NERVAE. F. NERVA
TRAIANVS. AVG. GERM. PONTIF. MAXIMVS
TRIB PO. XXX

This inscription is generally supposed to have been designed in remembrance of the first Dacian campaign, and the construction of the wonderful road along the Danube.

A MOONLIGHT RAMBLE AT THE TROSACHS.

Two or three years ago, tired of the dissipation, gossip, and scandal of a watering-place on the southern coast, in which I had for two months been seeking to recruit my health, I eagerly snapped at a proposal made by one of my friends to accompany him and his aunt on a short tour to the Scotch Highlands. The month was September, the weather propitious, my companions agreeable, and the time passed unheeded, until we found ourselves one fine evening, when on our way home, comfortably installed in the only available sitting-room of the hotel at the Trosachs. We had performed our ablutions, and were holding council upon the advisability of refreshing ourselves by rolling into one an early tea and late dinner, when we were attracted to our window by the noise of a droski driving into the yard. Two ladies and a gentleman alighted, and entered the inn. Mr. Smith, my companion, hereupon observed to his aunt, Miss Jones, running his fingers through his huge black whiskers, with that peculiar shrug by which a cockney always expresses his satisfaction at having anticipated somebody else in seizing upon something, thereby making the said cockney an object of envy, and procuring him a reputation for sharpness,—"Egad, we've nicked 'em; just too late, they'll have to sit in the coffee-room, or else go to bed." His keen sense of the ludicrously uncomfortable nature of this alternative here displayed itself in a guffaw which shook the building, and we sat down to tea with renewed zest, when we reflected upon the peculiar advantages which we were just then enjoying. We had not commenced, when a knock at the door heralded the entrance of the gentleman newly arrived. Smith put on a face of sourness and dignity, and Miss Jones, poor old woman, never raised her eyes. I looked mild and patriarchal, and to me the stranger addressed himself with an air of easy confidence. He was an American I saw at a glance—short-tailed, long-bodied coat, whiskers under the chin, waist slightly compressed for want of braces to support trousers, height five feet seven or eight, features sharp but intellectual, forehead lofty, and a calm conciliating eye.

"We've just arrived from Dumbarton," said he, "two ladies and myself, and find that all the sitting-rooms are engaged, and I have come to request of you the favour of allowing us to share yours for the remainder of the evening, as it would be unpleasant to be obliged to remain in the coffee-room."

I saw Smith's lips beginning to move, I knew what was passing in his mind: he had paid for the room and wished to have it to himself—besides, his aunt's health (the old woman was never better in her life)—people travelling must take chance, and all that sort of thing. With desperate promptitude I anticipated him by responding, "Certainly, sir, certainly—with great pleasure,—show the ladies up."

And in they came. The first was tall, her figure rounded and plump, her hair a light brown, and her face clear and radiant, candour and truth in every feature, and a soft bright eye which darted kindliness in every glance. Every lineament seemed moulded to express happiness.

While she was performing that mysterious operation which novelists call "swimming gracefully" into the room, but which men of less vivid imagination have no hesitation in pronouncing to be ordinary walking, although the process is unseen, I had full time for observation, and the result was certainly most serious. I felt myself struck "all of a heap," to make use of an idiom common somewhere in the country. From being a free Briton, living under a constitutional limited monarchy, and exulting in the consciousness that were my garden in Islington capable of producing a fig-tree, which it was not, I might dwell under its branches in peace, hurling defiance at the occupants of the adjoining premises,—I found myself suddenly descended into the condition of an abject slave—a slave to a fine figure and a fine face. "That lady," thought I, "shall be my wife, unless she is already somebody else's wife. I will have her in the face of any obstacles, how stupendous soever" (this last phrase I ran over twice, it seemed a huge obstacle in itself) —"how stupendous soever. I would marry her were she utterly destitute of all those appliances which the fall of man has unhappily rendered necessary; or supposing, that in consequence of the present police and poor-law arrangements such a case be extreme, or in fact impossible,—supposing that she has not yet remunerated the respectable tradesman from whom her present attire has been obtained, why then I will marry her, and pay the bill!" Having passed these magnanimous sentiments through my mind, and it took but a second to do so, I glanced at her companion, and found that they were the opposite poles of a magnet in appearance—one attracted, the other repelled. Her features were regular and even handsome, her eye large and dark, with a dash of fire in it, calling up some few confused notions about senoras, mantillas, lattices, gondolas, orange groves, knives, mysterious disappearances, and sorrowing friends, but the *ensemble* was cold and a little forbidding.

I now arose, and announcing myself as Brown (supposing, for the sake of harmony that my name was Brown), introduced Miss Jones and Mr. Smith in due form. I was informed, in reply, that the strange gentleman was Mr. Lynn—that the object of my admiration was Miss Lynn, and that her companion was Miss Blackwood, the author of *The Moral Beauty of the Planets*. Hereupon arose a confused murmur, in which the words "Brown," "Jones," "Smith," "Lynn," and "Blackwood," were indistinctly heard; then a general nodding and smiling, and moving of chairs, and finally we took our seats.

The conversation at tea was lively. Miss Lynn's remarks were put in so mildly, and so winningly, that let one disagree with them ever so much, he would feel it a heartless thing to say so, but were withal so imbued with a spirit of love for whatever was pure and lofty in man, and grand or beautiful in nature, of loving trust in humanity and in its high destiny, and the final triumph of great and regenerating truths, that at every word I felt my chains rivetted more closely, and escape became more hopeless. Miss Blackwood was rather silent and reserved, but occasionally gave evidence of latent enthusiasm. Lynn was chatty and a little argumentative, and Smith silent, the conversation not being in his line. Miss Blackwood, I saw, had formed anything but a good opinion of him, from the contemptuous glances which she occasionally directed towards him.

And thus passed the evening, and bed-time came at last. Miss Lynn found her feet cold, and proposed going down to the coffee-room to warm them. Her brother suggested a walk as an agreeable substitute; the night was clear, the moon shining brightly, and the Trosachs, by moonlight, was a novelty. It was agreed on all hands, except that particular direction in which Smith and his aunt lay, who declined joining us on account of the cold. Lynn took charge of Miss Blackwood, I, to my inexpressible delight, of Miss Lynn. He and his companion led the van, I and mine brought up the rear, and we struck out at a rapid rate towards the hills. The first few minutes was spent in repeating those common-places with which a lady and gentleman mostly endeavour to shake off the embarrassment which seizes them irresistibly upon finding themselves alone together for the first time. We were progressing but slowly,—more slowly than I would have expected, considering the pleasant chat we had at tea, when suddenly the lady's cloak came loose, and fell off. "My gracious, how stupid!" exclaimed she. "Oh, dear no," said I, as I ran to pick it up,—"anything but that. Such things *will* happen, you know." In my heart I looked upon the occurrence as the most fortunate one that could have happened at this juncture. The cloak had fallen on a furze bush, and somehow had got so fastened and entangled, that it took me a long time to loosen it. Miss Lynn stooped down to help me, and I believe the process seemed then more intricate than ever. At last, however, we succeeded; and having duly replaced the offending article on her shoulders, we resumed our walk. Our companions were out of sight, and we hurried on, but to our surprise could not succeed in overtaking them.

Miss Lynn at last began to get alarmed, I whistled, and was answered. This restored her confidence, and we still advanced, but still they came not in sight; we now, however, felt assured they were but a short distance before us, and we resumed our conversation. The night was calm, and the moon shone brightly on the lake and mountain with a mellow light. A

soft breeze now and then gently sighed through the bushes, and seemed to whisper—

> "Summer nights were made for love,
> And love was made for Summer nights."

There was inspiration in the hour and the scene, and we both seemed to feel it. I waxed eloquent on subjects about which I could scarce have uttered a word a few minutes before, and as Miss Lynn looked upward, her fine open face seemed just such an one as the goddess of the night, the silent witness of so many tearful, prayerful vigils, so many whispered vows, so many fairy dreams, so much purifying penitence, and so many vain regrets, in whose calm light so many solemn musings teach the heart to suffer and be strong, would love to shine on; and those cheerful eyes, whose clear, steady gaze bespoke a mind at ease, and a life of unassuming goodness, seemed to gather from the pale orb a tenderer and more subduing radiance. Ah, Brown! thought I, as I gazed upon her, thy race is run; this night thy doom is sealed. No more bachelor suppers shalt thou have; no more shalt thou and thy friends entertain each other with those choice anecdotes with which the gentlemen of the Stock Exchange beguile their leisure hours; no more shalt thou repair unto those nocturnal haunts of giddy men, known as "Cider Cellars," and "Coal Holes;" no more suppers at Verrey's; no more latch-keys—that is, if thou canst help it. Thou shalt lay aside thine old habits, and put on the new man, for the web of thy destiny shall now be woven by the hand of another.

On we walked. The hours passed quickly—it was now near midnight. Miss Lynn was thoroughly frightened at not having seen or heard of her brother and friend, and was getting into a state of extreme agitation. Besides she was overcome with fatigue, and at last declaring she could walk no farther, sat down on a rock, and begged of me to run on and search for the missing couple.

To hear was to obey. I ran a mile or more, shouted till I was hoarse, and whistled till my lips refused their office; but every sound came back from the rocks with a mocking air. I returned crestfallen to my fair charge, and now began to feel that matters had assumed a serious aspect. We could not be less than three miles from the hotel, over a rugged and toilsome path, and the night was far advanced, I hardly knew how to act; but never was perplexity so pleasing. Was ever man in so glorious a position—at midnight, by moonlight, on a lonely mountain in the Highlands, far from all assistance, and the woman, whom of all others, I wished to please in sore distress and difficulty, and none but I to help her out of them. Here was a position more full of unalloyed triumph and gratification than that of any conqueror the world has ever seen. There is a story, that Xerxes surveyed the ships by thousands, and men in nations, which moved and lived to do his bidding, from the rock over seaborn Salamis, with proud satisfaction. Mighty conquests were, as he thought, before him; but what were they when compared to that which I might look for, did I but use with skill and discretion the power with which I was at this moment invested. I had not yet breathed a word of love; I felt it was too soon for that; but I felt assured that my fate lay now in my own hands. Great attention, great delicacy, great devotion might gain the lady's heart; gratitude for being helped out of "a fix" is a feeling, which in a woman's breast is nearly allied to love, and often induces it. It might prove so in this instance, and then Xerxes, Alexander, Cæsar, Wellington—pshaw! what a paltry lot, what sordid common-place individuals!

I now told Miss Lynn, that there could hardly be a doubt, that her brother and Miss Blackwood had gone home by another path, and were already at the hotel; and by dint of encouragement and suasion succeeded in rousing her to set out homewards.

On our way downwards she became calmer, and dropped her cloak once more. This restored her at once to her habitual cheerfulness, and I actually began to arrange my thoughts for the purpose of making a formal exposition of the state of my feelings. I felt that this was not the time nor place, and that I was hardly warranted in taking such a step in consequence of anything that had happened. But still when should I have such another chance,—

> "Seldom comes a moment
> In life which is indeed sublime and weighty;
> To make a great decision possible,
> O! many things, all transient and all rapid
> Must meet at once: and haply they thus meeting,
> May by that confluence be enforced to pause
> Time long enough for wisdom, though too short,
> Far, far too short a time for doubt or scruple."

Unhappily, however, the doubts and scruples carried the day, and my lips remained sealed.

As we neared the hotel, we saw lights gleaming, heard dogs barking, horses galloping, and found the whole house in a state of alarm. Our lost companions had arrived before us in dreadful anxiety, had aroused the inmates, and set a general search on foot; as we came up I saw the servants grinning and winking, and began to feel a little sheepish, but was relieved by Miss Blackwood rushing up to Miss Lynn, casting herself upon her neck and kissing her repeatedly. My feelings here overcame me; the wish rose so strong in my breast, that I might be Miss Blackwood, *pro tempore*, that to banish the preposterous notion from my mind I turned away, and sauntered towards the inn door. I there learned from Lynn that Miss Blackwood was so terrified by our absence that she was near going into hysterics, and was, in fact, terribly shocked. I was entering into explanations, and comparing times and distances, when the two ladies passed us at the door; but just as they reached the stairs, Miss Blackwood fell in a swoon. Smith, whom the noise had roused, was standing upon the stairs, and with his aid I carried her to her bed-room, where the application of a little cold water soon restored her. Smith was busily engaged in chafing her hands, when she regained her consciousness, and her first exclamation, uttered without noticing his presence, was, "Oh, my dear Emily, how glad I am it was not the one with the black whiskers who was out with you!" Smith paused for a moment, saw at a glance the force of the insinuation, and walked away. The iron entered into his soul; he seemed to shrink in dimension before my eyes, and become a fitting object for the scorn of gods and men. Smith, who was known all over Camberwell as a model of unimpeachable properness, who was a council member of four different religious and mutual improvement societies, and lectured five nights out of every week upon Cruelty to Animals, the Music of the Spheres, and the Dignity of doing Nothing to Nobody, the idol of the pious young ladies of the congregation which he adorned, and considered a nice young man for a small tea-party by the elderly ones,—Smith, who spoke like a book, never read a novel, had a mission, didn't believe in love, because he never loved, and wasn't ever going to be married,—to have it insinuated that he was not to be trusted with a young lady upon a mountain by night! Oh, it was too bad! And his whiskers, too,—that they should be made a matter for imputation—the only worldly vanity which he had retained, cherished and greased. He went to bed in high dudgeon, declared his intention of returning to town on the morrow, and started at an early hour.

I strolled out for a walk before breakfast, intending to propose another excursion with Miss Lynn during the forenoon; and then bring matters to a crisis. On my return to my horror and astonishment I found the bird had flown. They were gone twenty minutes before! Here was a disappointment, she had told me they were proceeding to London. I determined to follow, and I did. Many a day since have I searched and enquired, and offered rewards and employed detectives to discover her whereabouts, but in vain. Are that dropping of the cloak, and that midnight ramble which was the consequence of it, and all those hopes, and fears, and plots, and schemes, to go for nothing, and leave me still the same Brown as before going to Scotland! Or am I under the benign influence of my divinity to become one day another and a different, and a better Brown? Am I to transmit my name and virtues to posterity, or are they to die with me, and leave no mark on the sands of time? We shall see.

FRANCIS SNYDERS.

But few details of the life of Snyders, whom the Dutch and Flemish writers also call Snyers, have come down to us. The old biographers of the Low Countries are desperately laconic. They are mostly content with giving a few dates, and a few leading facts; but of the sentiments, character, joys, sorrows, and little affairs of every-day life which go to make up the sum of human existence, and which should occupy a leading place in every really good memoir, they take no note whatever, and tell us nothing. But all their sketches are adorned with excellent portraits, so that having given a painter's likeness, they thought nought else was wanting, forgetting that every great man is possessed of a moral and intellectual organisation, with which it is of far more importance that later generations should make themselves acquainted, than with the outline of his figure or his features.

Francis Snyders was born at Antwerp, in 1579, two years after Rubens. In 1593, he was a pupil in the studio of Peter Breughel, but he soon after commenced to take lessons from Henry Van Balen. The date of his reception in the Academy of St. Luke, as *free master*, is 1602. This date, and the mention of Snyders' first instructor, which no biographer has given, appear in the *Liggere* or Register of the Corporation of St. Luke, commenced in 1453. He was not long in forming an acquaintance with his great countryman, Rubens. A strong friendship soon sprang up between the two artists, which was never afterwards in the slightest degree disturbed. They laboured often in common; Snyders painted animals and flowers in the compositions of Rubens, and Rubens sketched the human figures in Snyder's stirring chase scenes. Many of the dogs in the Gallery of the Luxembourg do honour to the pencil of the latter. When the great master of the Flemish school found his end approaching,



FRANCIS SNYDERS. FROM A PAINTING BY VANDYCK.

he wrote his will, and appointed his old fellow-labourer to take charge of the sale of his paintings, together with Wildens and Moeremans.

The statement has often been made that Snyders was in Italy, and did not definitively make his choice of the genre in which he afterwards became so famous, until he saw the works of Benedetto Castiglione. But this is one of the many blunders and mistakes which abound in the history of the fine arts, and disfigure it. Snyders was thirty-seven years of age when the southern painter saw the light, so that he could not have possibly imitated him before his sixtieth year. But at the former period he had already formed his style, and even produced some of his master-pieces. The Archduke Albert, the governor of the Spanish province in the Low Countries, appointed him principal painter to his court, and commissioned him to execute several great works, which he wished to present to Philip III., and many of which still adorn the old palace of Buen-Retiro. The Archduke of Austria, Leopold Wilhelm, also bestowed on him several special marks of favour. He was no less intimate with Jordaens, than with Rubens, and they executed several paintings in common. Some writers have alleged that a similar relation existed between him and Martin of Vos, but the latter died in 1603, when Snyders' talents had not yet displayed themselves. Snyders himself closed his career in 1657, in his seventy-eighth year. He is supposed to have been the master of Peter Boel.

Nowhere do animals seem to have caught the attention of artists so much as in Holland and Flanders. This is easily accounted for. The landscape there presents no grand and striking outlines to the eye,—no great effects to excite the imagination. The vast and monotonous plains present but two aspects: the one, great fields of cultivated soil, lightly furrowed in long lines by a plough drawn by heavy lazy-looking oxen, the ass trotting under his burden, and the dog yelping behind his master, the sheep penned up in the stubble during the damp foggy days of autumn; the other, wide spreading, and one might almost think, interminable meadows, where bulls, and cows, and oxen, sheep, and goats, crop the thick grass intermingled with rushes and reeds. In these uniform landscapes the animals are necessarily the most striking feature. On whichever side one looks, flocks and herds are grazing, chewing the cud, or sleeping, and dogs watching over them; from every quarter their varied cries are wafted through the air, forming a species of pastoral melody, as the notes become mingled in the ear. Flocks of wild geese and ducks are scattered over the marshes, the cranes flying athwart the grey wintry sky in long files, and the familiar stork roves without fear amongst the indolent cattle.

We can then easily believe that animal painting must have sprung up and developed itself in Holland and Flanders at an early period. The works of John Van Eyck exhibit, without doubt, at the very birth of the Flemish school, a precocious talent for this department of art; but in his paintings, animals appear only as accessories of but very secondary importance. As isolated subjects, having an intrinsic value of their own,



FIGHT BETWEEN BEARS AND DOGS. FROM A PAINTING BY SNYDERS.

they were the last objects which an artist of that day would have chosen to copy. In the latter half of the sixteenth century, a painter named Francis Pourbus, born in 1640, had, after the Flemish school had made its *debut*, turned his attention in that direction, but he did not make the painting of animals a distinct and separate object of study. He occupied himself equally with history and portraits. His fondness for this particular field of art was considered by his contemporaries a distinguishing feature in his career, but in his epitaph he is praised only for the skill with which he copied the forms of brutes. What his works were, we know not, there are none of them in any of the public galleries of Europe. As to Hoefnaghel, who lived at the same period, he can hardly be called a painter, as he merely occupied himself in the decoration of manuscripts by fantastic sketches upon the margin.

The passionate fondness of the nobility for the chase during the fifteenth, sixteenth, and seventeenth centuries, must have greatly

encouraged the growth of animal painting. Hunting scenes are the most interesting part of genre. They constitute its heroic form. The great lords bought numbers of paintings, which delineated some of the most striking occurrences in their favourite pastime, to adorn the walls of their mansions; and gazing upon them was in those illiterate times the only means they had of rousing their imagination, or beguiling the tedium of wet or stormy weather; just as "fast" young men, nowo'days, hang up pictures of opera dancers, or wonderful rat-killing dogs, in their rooms.

But this support was, nevertheless, not sufficient. Landscape, marine, interiors, and grotesque subjects were all ably treated long before a tithe of the time and labour had been bestowed upon animals. This is a remarkable fact, but the reason is apparent. Of all subjects, animals are those which in themselves lend least inspiration, and afford least satisfaction, if we may so speak, to the artist. Charming or terrible scenes in nature—the sea, calm, or tossed by tempests, and breaking in wild rage on a rock-bound shore; the interior of churches, with their dim religious light and their sacred associations; of castles, with their feudal reminiscences; of houses, with their pleasing domesticity; offer resources of outline, arrangement, and colouring which are not to be found in beasts. They recal to the mind of every spectator a thousand happy memories of youth and home, and absent friends; one glance gives rise to dreams of passing beauty and ornament; the image ably reflected on the canvas arouses within us sentiments almost as deep and varied as the originals could have done.

But the sight of a brawny bullock, or stubborn-looking ram, cannot move us. By themselves, apart from the execution of them, they awaken but a feeble interest. Bears, wild boars, wolves, and stags struggling against the hounds, have some sort of dramatic attraction about them, no doubt, as in Landseer's well-known "Death of the Stag," but it is only of a secondary order. A painter must then not only make use of all the means at his disposal, but possess considerable ability to render paintings of animals productive of effect. Without consummate address he will not obtain more than a glance from the connoisseur; and the buyer or spectator must be able to appreciate the merit of the technical details of the work, apart from all moral or intellectual pleasure, to be able to bestow upon him his due meed of praise. The sight of animals awakens only in an indirect way the sentimental longing for country life—and perhaps without the accompaniment of a pleasing landscape, not at all.

It is certainly curious that Breughel de Velours, Rubens, and Snyders, all born within a space of four years (1575-77-79), when art had reached such an advanced stage, should be the first who painted animals in a superior manner, at least in Flanders, for the last works of Pourbus would, without doubt, have sustained a comparison with theirs.* Which of them set the example to the others? They were friends, and saw each other constantly, so that it is probable the impulse originated with one of them. The absence of all documentary evidence renders the solution of this important question impossible; but we may readily attribute the initiative to the creative genius of Rubens, although we can offer no proof in support of our conjecture.

However this may be, the talents of Snyders and Rubens so completely identified themselves one with another, that Campo Weyermann looks upon those works which they executed in common as the best of each. This is, perhaps, a piece of hyperbole; but it well expresses the happy agreement of these two kindred spirits. The paintings of Snyders exhibit much the same qualities as those of Rubens,—the same richness of outline, the same fire in execution, the same prodigality of labour, and the same style of colouring. We ought to add, however, that in the last particular he is not equal to Rubens. His colouring is duller, harder, less vigorous, and less harmonious, and he does not manage the transitions so well.

* Jacopo da Ponte, surnamed Bassan, from the place of his birth, had preceded them, as he was born in 1570; but he did not, as far as we know, paint separate groups of animals. His manner is consequently much the same as that of Beukelaer, Peter Breughel, and many other Flemings born before him, or about the same date.

Of all painters of animals, Snyders is the one who has given to his style the grandest character. That noble outline and heroic figure which we meet with in the personages in the works of the chief of the Antwerp school, are found also on the canvas of his friend, and viewed from distance, before the subject can be distinguished, his pieces present the same physiognomy. Snyders' animals fight with chivalrous ardour; it seems as if they were dreaming of glory. How their eyes flash with fury! What tension of the muscles, what desperation in every attitude! They bite, they scratch, they throttle, they crush in the most pitiless manner; the blood flows, the entrails issue from the abdomen, the torn flesh palpitates, and the broken limbs hang together by the skin. Men could do no better.

Snyders' compositions are greatly varied both in character and execution. He began by painting flowers, fruit, and scenes of genre, and afterwards frequently returned to this sort of work. Very soon he betook himself to quiet subjects—the animals entering the Ark, the Garden of Eden, the creation of quadrupeds, and of birds; here the interior of a kitchen, with provisions of every kind loading the tables, and hanging from hooks in the joists of the ceiling and along the wall; there a fisherman temptingly displays a basket filled with floundering denizens of the sea and the rivers, glittering in all the hues of the rainbow; and farther on, a poulterer spreads his merchandise on his shop window with a cunning hand, and eyes them with a knowing air, from the roebuck down to grouse and barn-door fowl. Sometimes Snyders took dramatic episodes in animal life for his subjects: two bears, for instance, struggling fiercely against a pack of hounds; a hippopotamus, defending itself in the midst of a reedy marsh, opening his monstrous jaws, armed at all points with enormous tusks; a lion and tiger rolling in the dust, with bloodshot eyes, and contracted jaws, and distended claws, expressing by a thousand signs their rage and pain; two dogs quarrelling over a bone, their ferocious looks, their eyes full of fury, their lips wrinkled and upturned, their teeth stripped, have all the animation and truth of nature. It is the low drama copied from high tragedy.

The portrait of Snyders, in etching by Vandyck, is considered, and justly, the best that that great painter ever executed on copper. This, in the absence of written evidence, proves that the two great artists were on terms of intimate friendship. Neefs afterwards finished it with the graver.

Snyders himself published sixteen etchings of various sizes, representing animals. They display much the same characteristics as his other works. They are highly esteemed by amateurs, but it is, of course, very difficult to meet with them. John Zaal and Reveil have also engraved some of his paintings.

We ought to add, that Bryan asserts that these engravings are not the work of Snyders, but are by Jan Fyt. The first impressions, which are very rare, were published by him in 1642, with a dedication to the Marquis de Solerio, and several of them have the name of Fyt in addition. *Johannes Fyt pinxit et fecit*, or *Fyt* only. Subsequently the plates fell into the hands of some person who erased the name of *Fyt*, and substituted that of *Snyders*: "*Liure d'animaux Peint et Gravé par Senedre.*" It will be observed, that one of the prints, No. 2 of the Second Series, has the date 1662 written backwards. A close examination will satisfy the inspector that there has been some tampering with the last 6; it is coarser than the first; the cause must be left to conjecture.

The Dresden and Vienna Galleries, as well as the Berlin Museum, contain admirable specimens of Snyders' peculiar style, splendid hunting scenes, and the fine expression of animal rage and passion. The Grosvenor Gallery contains a fine lion hunt, and a bear hunt, by Snyders, as well as a picture by John Fyt; other pictures attributed to Snyders will be found at Hampton Court, and in private collections in this country. The Duke of Northumberland and Lord Shrewsbury are amongst those who possess several fine specimens. There is a very fine picture by Snyders, known as "The Beggar of Antwerp," at Slindon, in Sussex, the seat of Lord Newburgh.*

* Head's "Handbook of Painting," p. 348.

ANNIVERSARIES.

The year is full of anniversaries. From the first of January to the last day of December we have annual festivals, or annual fasts. When the year is born and when the year dies, when the year is fragrant with spring flowers, glorious in his summer sweetness, melancholy in his autumn fadings, or wrapped in a snowy winding-sheet—men weep, or laugh, or cheer, or shout, grow solemn, or jocose, because the day is a reminder, and sends them wandering into the past.

Every day a red-letter day. A saint's day every day. Every revolution of the earth suggesting a new train of thought. And to a contemplative mind there is so great a variety, that one may suit one's anniversary to our state of mind. Lachrymose Damper may find each day that some great man died. He may write *Hic Jacet*, or *Memento Mori*, on each of the three hundred and sixty-five days which make up an annual revolution. He may give a ghastly dash to the most cheerful sunshiny landscape, and like the demoniac in the gospel, may dwell among the tombs. Dr. Watts died. John Wesley died. Sir Isaac Newton died. Sir Humphrey Davy died. John Milton died. Samuel Johnson died. He may make a gloomy catalogue, diversified by such pleasing variations as Admiral Byng shot. Ann Boleyn beheaded. Archbishop Cranmer burnt; or, Dr. Dodd hanged! His anniversaries may be "vanities of vanities," his morning greeting "dust to dust," his evening parting "ashes to ashes!"

Hector O'Halloran may accommodate *his* warlike disposition with all the battles, sieges, and "great victories" which have cursed wicked humanity. Pleasing thought! that only some few years ago, and on this very — day of the — month, two gallant cruisers met, and with deadly fire shivered one another's timbers! or, that rank and file marched to the battle-field, meeting their "natural enemies" in deadly carnage, but "never marched again." The battle of Cressy, of Black Prince notoriety; the battle of Agincourt, when:—

> "The poor condemned English
> Like sacrifices by their watchful fires
> Sat patiently to inly ruminate
> The morning's danger; and their danger sad
> Set forth in lank, lean, cheeks, and war-worn coats,
> Presenting them unto the gazing moon
> So many horrid ghosts."

Arouse Hector's courage as he thinks upon this holy Crispin's day—sacred to the lapstone and to Agincourt—and how happy must he have been, who could—

> "Yearly on the vigil feast his neighbours,
> And say, To-morrow is St. Crispin."

But there are *natal days*, when your poets and painters, and soldiers and sailors, and kings and queens, prelates and patriots were only cradle-tenants, and "*welcome little stranger*" their only notoriety. Some people have a peculiar fancy for knowing every great man's birthday; and here every day is an anniversary. What important days are the birthdays of great men! What a complete exposure of that absurd old saying, "it will be all the same a hundred years hence."

Then there are your great national anniversaries always falling due. Your Test and Corporation Act repealed—your Edict of Nantz revoked—England and Scotland united—Savings' Banks introduced—Trial by Jury instituted—Sidmouth's Bill rejected—British Museum established — Vaccination introduced — and Washington inaugurated.

These are your great public matters; yet, nevertheless, matters which in the busy, toiling world, are altogether overlooked. But there are anniversaries—public anniversaries which are not roughly shouldered out of the way, to live, and move, and have their being only in Almanack Calendars—there are days which wake up old memories deep and tender in ten thousand thousand hearts.

The New Year! When the old year dies, and the new year breathes his first breath in a noisy world, and the glorious fact is shouted into the world's ear with the mighty voices of stentorian bells high up in parish steeples—ring, tug, strain, till the sinews crack with the fibry twists of the old bell-rope; a merry peal—clearer—louder—quicker—every inch of metal thrilling, quivering—little bells and big bells leaping and whisking like mad things—as if men had no fear of stiff arms and aching limbs to-morrow.

And May-day, happy, cheerful, merry May-day—outmarched in many parts by March of Intellect, perchance, in this dear land of ours; but still a day remembered, redolent of perfume and sweet smelling flowers; and though men now forget the festival of opening summer, and morice dancers pursue no lively measures to the sound of pipe and tabor; and no huge shaft is raised, decked with summer offering, as straight as any arrow that ever English yeoman drew, we still look back and love the past.

And *Christmas*—glorious Christmas—with the cold sharp wind outside, and the bright, roaring, cheerful fire within—the red berries, and the dark green leaves—the happy meetings—the pleasant faces that gather round the hearth—when men put off their business looks, and dare to sport in Christmas fun—when every breath of air is made melodious with Christmas bells.

Then there are anniversaries such as people here in London only care about; and young London even then, in June, when in our cathedrals there is a mighty gathering of girls in coloured frocks and mittens, and boys in round caps tufted with coloured tops. The gathering of the metropolitan parochial schools has ever been, since 1781, a great anniversary; their first gathering is recorded in an old poem of the time, beginning—

> "'Twas on a Whitsun-monday
> Their innocent faces bright
> The children passing to and fro
> In red, and blue, and white;
> Grey headed beadles walk before,
> With wands as white as snow;
> Till 'neath the mighty dome of Paul's,
> They like Thames-water flow."

And Guy Fawkes day—when pyrotechnic Protestantism lights up its Roman candles, when coloured fires bespeak the staunch Church and State loyalty of No-Popery Britons. And Lord Mayor's Day, when Cockayne is wide awake, and civic majesty, tunnels its way through the November fog, and in its heavy barges rows off to Westminster to count its hobnails.

But in another sense the year is full of anniversaries. There are home festivals and home fasts. Birthdays; how childish fancy clings about those days as special holidays and sacred spots—and maturity looks back and strives sometimes to fill an aching void with pleasures that are gone. Home, and old familiar faces are about us; faces that have passed away long ago—the boys we used to play with when at school, some well-remembered childish words are in our ears, and the scene; ah! was it by the shaded pond, where in the summer-time the waggoner would stop his team and let them drink its clear, refreshing waters? Or was it near that narrow country lane, fragrant from Spring to Autumn with innumerable wild flowers, and the crushed odour of the sweet thyme, when the string of gossamer sauntered about in the golden air, and the dragon-fly glittered in the sun? Or was it in some busy noisy town?—no matter, if it was our home, we cherish its memory, and when our birthday comes, it sends our mind back to the old scenes. And our anniversary is a time whose return to us is for the better, and not for the worse.

Need we say, that there are wedding days—days, whose annual return brings back the remembrance of white gloves all in a flutter, and orange-blossoms tremulous with the excitement of the wearer—but days that the good man cherishes—days, whose return draws him nearer to her who shares his joys and sorrows, and is his second self!

And there are solemn anniversaries which the world knows nothing of. Death days are anniversaries. When the object of our tenderest affection was removed—when we saw the mother, the sister, or the darling child wasting away—and we were forced to let them die. And every year to have the solemn day returning. When we sat by the bed all day, hoping to catch some precious word, but saw the eyes grow fixed, and felt the pulse flutter and depart. These thoughts come back as year after year rolls away, and while the heart grows sick, man's faith mounts upwards to the sky, and we feel that there is yet a sanctuary for the fugitive, and a blest reunion in the life to come!

Said we not truly the year is full of anniversaries?

THE LADIES' DEPARTMENT.

HANDKERCHIEF BORDER, IN ANTIQUE POINT LACE.

MATERIALS.—Point lace cottons, and No. 1 Mecklenburgh thread.

We give the section of the handkerchief of the full size, that workers may draw their own pattern from it. It may be made of any dimensions required. The perfect pattern occupies the entire side, reckoning from the open flower at the corner. Were this entirely repeated for the quarter, it would make the handkerchief rather too large for general taste: about one-half the pattern, in addition to the piece given, (or the open flower, and the two next to it on the inner side), would be found sufficient for the quarter. One-fourth of the handkerchief being drawn on tracing-paper, all the design can be marked from it, on red, blue, or green; but it is preferable to draw a little more than a quarter only, instead of the whole handkerchief, which is cumbersome to hold. When a quarter is done, it may be removed from the paper, which can be used a second time by a careful worker.

No braid whatever is used for this handkerchief, which is similar, in the mode of working, to some of the most valuable specimens of antique point. The scroll and flowers are close and heavy, the inner ground is guipured, in Raleigh bars, and the space between the scroll and the outer edge is filled with fine and close English lace.

For the antique point stitches, we refer our readers to the ILLUSTRATED EXHIBITOR AND MAGAZINE OF ART, Vol. I., No. 3. The stem, and the closest part of the flowers (which may be



BRAIDED GILET.

HANDKERCHIEF BORDER, IN ANTIQUE POINT LACE.

distinguished in the engraving), are done in foundation-stitch, with No. 90, point-lace cotton. The veinings of the petals, where they occur in this stitch, are made by taking the foundation thread at double the distance from the last one, and working over it a row of Brussels stitches at the usual distance from each other, instead of close, as in foundation-stitch. The calyx of the flower is done in Antwerp lace. The very finest point-lace cotton should be used for all this stitch.

All the flowers, done as we have just described, have a centre worked in Venetian lace: for this, No. 70 cotton must be used.

The open flowers, and the buttonhole rounds, are done with Mecklenburgh thread, No. 120. The English lace, with No. 100 cotton. The Raleigh bars, with Mecklenburgh, No. 100.

The edge of the handkerchief border is finished with close buttonhole-stitch, on which Raleigh dots are worked at regular intervals. This edge is worked after all the rest of each quarter is finished.

If it be thought troublesome to outline the whole pattern with thread, No. 5 white cotton French braid may be used. The effect is, however, greatly inferior to that of the thread.

To make up the handkerchief, cut a square of cambric the exact size to fit the lace, allowing for a very narrow hem. When the hem is made, lay the inner line of the lace over it, tack them together, and work a row of close Brussels edge over the two, to connect them.

BRAIDED GILET.—(See page 284).

Materials.—Silk or cashmere of a colour to harmonise with the dress, and three pieces of Russia silk braid. For light colours, to be worn in evening toilette, the braid should be the same colour as the gilet, but a shade darker. For a morning gilet it may be of a different, though harmonising colour. Pale blue or pink watered-silk is most worn for evening dress. A very beautiful gilet for a bride was of rich white watered-silk, braided in arabesques, with white braid, edged with very fine gold thread.

This is a very effective addition to the braiding, as the gold edge throws the design into strong relief. The braiding is first done, and then the thread laid on, at each edge, with silk of the same tint, the ends of the thread only being drawn through the material. The design is marked with a pounced pattern (see Instructions in Embroidery). A length of the braid being cut off, the threads drawn out of it are used for running it on, which prevents any difficulty arising in matching it with sewing silk.

Gilets made of *glacé* silk are usually braided with one of the two colours that are mingled in the fabric.

A new and very beautiful mode of working with braid, is termed *broderie en lacet*. This would be very suitable for the gilet in question. The braiding is done as usual, and then all the flowers, leaves, and scrolls are filled in with point lace stitches, for which the small reels of China silk, to match the braid, are used.

The stems are usually done with point d'Alençon, and the taste of the worker may be employed for other parts. The work must be done on a larger scale than is requisite for real point, so that there is very little trouble in it, and the effect is extremely rich.

We shall shortly give our readers an apron in *broderie en lacet*, which we doubt not they will admire.



COLLAR IN BRODERIE ANGLAISE.

COLLAR IN BRODERIE ANGLAISE.

Materials.—French Muslin, and Embroidery Cotton, Nos. 40 and 50.

The section given of this collar is the full depth, and nearly one entire half. For an ordinary size, one vandyke more, and the half one completed will be sufficient for half the collar. It should be taken from the engraving, on tracing paper, and the other half can then be marked from the reverse side.

It is marked on the muslin with indigo, as in other muslin work. The leaves are bordered with satin stitch, and the veinings are merely single threads closely sewed over. No part of this collar is cut out, but the grapes are made by piercing rather large holes with a stiletto, and working them round in long and graduated button hole stitch. This should be done with No. 50 cotton.

The edging consists of scalloped vandykes, done in raised buttonhole stitch.

As the mode of doing muslin work is frequently a matter of difficulty, we will describe the way in which it is held by the Scotch and Irish peasants, their frame being the simplest, and in our opinion, the most convenient, extant. Two small light wooden

hoops are chosen, one of which fits nearly tight into the other. The muslin is stretched over the small one, and the other is slipped over it, thus keeping the muslin in its place. The thumb nail of the left hand is kept constantly under the part which is being worked. If the hoops do not fit tightly, the small one may have a little linen wound round it.

THE SISTERS IN ART.

PART IV.

"What, then," asked Alice, "has Lizzy a taste for art? I suspected as much, when Mr. Wood told me how intently she seemed to look upon an old case of cinerary urns, chiefly from Pompeii."

"Yes;" replied Guiseppe, "a talent of a peculiar kind—one that would be great in design, if properly trained and cultivated—though limited in extent. You will perfectly understand me when I say—that everything in Silver's shop is a passion with the child———"

"And not with me," said Alice, bending in her enthusiasm to the old sculptor. "I think man's work often beautiful—sometimes divine; but God's always divine. And thus, whilst the line of the Etruscan urn is lovely, the tints on the Majolica dish rich as to colour, a bronze perfect in its detail,—to me, the darker outline of the sweeping ocean in a storm, the gathering of mountainous clouds as they roll across the darker blue, the ridge of the moorland heights as they lie far off in the green distance, would be all to me more suggestive of form in design, than any fictile work, however beautiful."

"But the two — talent and genius working together—what might it not achieve?" and the old sculptor said this, as if speaking to himself.

"Let us live and try, Guiseppe," spoke Alice, enthusiastically, "let me be a friend to little Lizzy; let us see in what way she can be taught—in the School of Design, or how?"

"That was suggested when she should be old enough," said the old man; "but it brought about a war of a month's duration; and I dare not interfere, or be paymaster for the poor child's teaching, as I have to feign an inability to pay my rent except by portions, and at distant periods; as were it supposed I could pay it, I should be turned out into the streets without ceremony. And Wilson says he should die to-morrow if he had not the shelter of my room."

"But what is Lizzy's mother's excuse in thus standing against the advantage of her child?"

"That she wants her help to wash and nurse."

"She can have a substitute," said Alice, thoughtfully; "I have a little money of my own, Guiseppe; and I will cheerfully pay what is needful. Only in pity let me rescue her from such a home."

"Bless you, and thank you," said the old man; "you will be the better angel of her life—perhaps you and Mrs. Silver may be able to accomplish it—for though she tries to conceal it, Lizzy's mother would be sorry to offend the Silvers, because of her husband's work."

Wilson's footsteps were now heard upon the stairs, so the subject was dropped; and when the tailor entered, and said that Mrs. Silver wanted to go, Alice withdrew, after promising the old man to see him again soon, and bring him good news.

Lizzy was seated patiently upon the staircase; but the minute she saw her friend, she rose, and put her arms about her neck, and kissed her fervently, when Alice promised that she would ask her aunt and uncle to let her come and spend a day in her little studio, and then they would talk about many things.

During their walk homeward, Mrs. Silver related to her niece all the things Mrs. Wilson had said and done, and these Alice was glad to find were so far effective, as to quite change the lady's opinion, and make her declare that for the future she should take Lizzy's and Wilson's part; and that whenever her husband began to grumble and talk disparagingly of his poor friend she would give no ear.

The very next morning Alice commenced the little design for the fragment of the Majolica dish, and though she proceeded but slowly, it was with success. It amused her much during the week it took to accomplish, to observe her uncle's interest in its progress. Several times during each morning he stepped up stairs from the shop to look at it, and he never came into the adjoining warehouse without entering the little studio on some pretext or another. On the day it was finished he came in again to look at it, and he could not conceal his pleasure, for he patted his niece on the head, and said that she was a good child, for she would put money into his purse. This admission was so propitious a one, as to give Alice courage to ask him if Lizzy might come and pass a day with her—a favour which was not only immediately promised, but made sure that very night, by his going in person to the Wilsons and asking Lizzy himself.

Of course, this growing good humour on the part of her husband greatly pleased Mrs. Silver, as it enabled her to execute many generous projects for her niece's benefit; which, without his tacit admission, were impracticable. She, therefore, bought Alice a pianoforte, to fill a vacant place in the studio (for the girl, though no great musician, sang charmingly to her own simple accompaniments), and would have enriched her with a watch, but that she knew the old man had one in reserve, which would be dear to Alice, whenever his mood should soften in regard to the old story of Van Cratz and the lost Rubens.

Lizzy came on the morrow, two or three hours beyond the early one appointed; but yet in time for dinner, and the grand pudding good old Nancy had prepared. But though she enjoyed this much, and Mrs. Silver was less stately than was anticipated, the rarest delight of all was to see Alice's quaint little studio and all its riches, and sitting side by side with her elder friend, make confession of that miserable home, and the infinite, if as yet only childish delight, she had taken for years in the colours and shapes of these quaint riches of the Silvers.

Alice Law was deeply interested in Lizzy's story, and more so still by the unconscious goodness and warmth of her heart. She felt she must be, and would be, a friend to the child.

In about three weeks after the Majolica dish and the needful design had been sent down into the Potteries, a small packet marked "glass" was brought in one evening by Nancy, just as her old master and mistress had done supper. Alice having a cold, had gone earlier than usual to bed, so that they were quite alone, and old Silver, conjecturing the package held the dish, did not long hesitate to open it. To his great joy, his surmise was a correct one; and when he had set his precious possession upon the table, it was not till he had put on his spectacles, and brought the candle very close that he could discover where the repair had been made, so finely did the fragment newly designed dovetail with the rest, and in so masterly a manner had the potter fused the new piece with the old. For a long while the old man gazed with wonder on the work before him, and this in silence—a sure sign to Mrs. Silver that he was extraordinarily pleased. Presently he took up the candle, still without a word, crossed the room, unlocked his iron safe, pulled out a drawer, and then came back with a small paper parcel in his hand, and drew up his chair to the fire.

"Wife, he said, when he had settled himself, "our niece is a very extraordinary girl, and I think I shall, as the Yorkshire schoolmaster said I should, have reason to bless the day she came. Yes, the match of the design is wonderful and beautiful for one so young—and I shall make—let me see, the bill for the job and carriage comes to £4—that will leave £16 clear, or perhaps £21—for I think of asking Mrs. Cohen £25 for the dish. I can say the design and repair cost so much more than I expected. Yes, my dear, yes—this is very nice and profitable—the girl is a good girl—I shall make further purchases of broken china—and just get out to-morrow those old fractured Pompeian vases—and see what she can do with them. Yes; the girl is very clever."

Mrs. Silver sat for some minutes quietly in her chair, with her face reading that of her anxious old husband, and then she said quietly, as she laid her little fat hand upon those most expressive old bony fingers before spoken of,—

"William, we were in error before—and you have acknowledged as much many times since Alice has been here—do not let us be so again and in a graver manner. Do not let *us*, who

are rich and have abundance, commit a deeper and a graver error still, by striving to make a base profit out of one who ought to be most precious to us. No! don't let us be again selfish and cruel—but let us do all we can to help this beautiful cleverness of our dear child."

Old Silver frowned for a few minutes, and then he said testily, "But Alice did the little design so kindly, wife—so cheerfully, wife—surely—surely—I may ask a little favour of her sometimes?"

"Only the more rarely, because she obliges at all times so cheerfully and kindly. Yes, ask her sometimes; but not for profit, but love—for I wish to see the love of father and child grow up between you. Yes, William, our best repentance for the past will be by the action of love and goodness in the present." And the prosaic little woman's eyes filled with tears as she spoke thus, showing that there was much genuine poetry in her heart—common-place and worldly as her life had been. Old Silver saw those tears, and his response was worthy of them.

"Susan, you're right. The girl's an angel—my heart's growing to love her hour by hour. Yes; if I sometimes ask her a little thing, it shall be as a father asks his child. There, now, go up stairs to her; and if she be awake, tell her about the dish—and—and—just give her this watch—her dead mother's watch—and say, that from this time, as long as I live, I will never recur, cruelly and spitefully as I have often done, to the old story of Van Cratz and the Rubenses. I bury it, at this moment, as deep as the grave." As he spoke, he turned his eye again on the Majolica dish, and emphatically added, "Tell her too, that she shall be our daughter in everything."

Mrs. Silver knew what this meant—it meant more than ordinary expressions of this kind. She could no longer control her honest feelings of gladness. So she rose, put her little fat arms round his neck, and fairly cried the matter out upon his shoulder. Then, quite as soon as her tears were dry, she took the little packet from her husband's hand and went up stairs to Alice, who was not asleep, and who saw instantly by her good aunt's manner, that something extraordinary had happened—as there had, considering old Silver's nature; and the little woman cried again with joy, as kneeling beside the bed she folded her niece tenderly in her arms and told her. Alice was much affected when she opened the little packet and beheld the watch, which years before had been one of the bribes given to win her mother's consent to marry the old picture-dealer; but now, its richest worth was, that it begat a newer and still kinder confidence between Mrs. Silver and herself, and led Alice to tell all her hopes and wishes respecting Lizzy, and the little plan she and the old sculptor had talked over between them on the occasion of several visits Alice had paid him, since the Sunday night which had introduced her to the tailor's miserable home.

So kindly did little Mrs. Silver listen and concur in these plans, that the very next evening the old curiosity dealer was suprised by hearing certain complaints of fatigue from his wife whilst she carved at supper, and also, sundry comments as to Miss Johnson's slowness in assisting customers, and showing the various riches of the place. And so pertinaciously and judiciously were such comments continued, as to make way in a week for the duly broaching the great proposal itself, viz., that Lizzy Wilson should come and assist in the shop and warerooms. At first, the old man grumbled, and thought proper to take upon himself one of his worst cynical humours; but in a few days he gave way, and left the matter to his wife and Alice. And they so judiciously acted in their arrangements of giving Lizzy a small weekly sum as wages, and another, as payment to a girl to fill her place, as at length to win Mrs. Wilson's consent to Lizzy's services in the curiosity shop between the hours of eight in the morning and eight at night, for the six days in the week. Thus, much to the joy of old Guiseppe and her father, was Lizzy emancipated from the thraldom of her miserable home, and placed amidst the fictile shapes and decorations which from her infancy had charmed her eye.

Lizzy had been a fortnight with the Silvers, and it had done blessed work as to the appearance and happiness of the child, when one morning, much to the old curiosity-dealer's joy, Mrs. Cohen paid her expected visit. She came, as usual, to purchase ancient china, and, as a matter of course, the fine Majolica dish was placed before her.

"Dear me!" she said, looking first at the Majolica dish, and then with surprise at the old curiosity dealer. "You have matched that magnificent piece of china, so unfortunately broken? How glad I am; for this, its counterpart, is lovely."

Old Silver would have said "yes," outright, but for his wife, who was present; so he answered it was the same dish, but wonderfully repaired, both as to the design and the potter's skill.

"Wonderful—it is so indeed; and the designer, who is it?"

Though good Mrs. Silver made many private signs, by winks and nods, for her husband to say it was their niece, he would not let this small cat out of the bag, lest it should hinder some future bargain, so he contented himself with saying, "That it was a person very clever, though very young."

"Well," replied Mrs. Cohen, "let the dish be mine; it makes my Majolica collection perfect. At what price did you say?"

For a minute old Silver hesitated, and then taking courage, and muttering something about cost of repair, said boldly, £25. The Jewish lady made no dissent, paid the money, ordered the dish to be placed in her carriage, and then turning to speak to Mrs. Silver, left the old curiosity dealer in a perfect ecstacy as to his morning's profit, and to attend upon another customer whose carriage at that moment drove up to the door.

"And will you not walk up into the warerooms with me, ma'am" said Mrs. Silver, when she saw her husband safely engaged. "We have added some fine things to our collection since you were here." And Mrs. Cohen assenting, she led the way upstairs into that long vista of warerooms, which at one extremity opened into Alice's little studio. The Jewish lady admired the beautiful rarities before her, made several purchases, and had reached the further end of the old dusty shadowed room, when Mrs. Silver, speaking in a low voice said, "Would you like to see the one who drew the figures for the dish?" and this being gladly assented to, she opened, in all the pride of her heart, the intervening door, and the Jewish lady beheld before her the little studio, with all its old china, its growing plants, its sketches of seaward coast and moorland height, and old quaint shapes in statuary.

"My niece, my dead sister's child, my Alice here," said the little woman, as she drew nearer, and placed her hand in joyous tenderness upon her niece's shoulder, "did the little sketch. My husband might not like exactly to tell you, but she did it, she loves such things, ma'am, she has from her cradle—she has come up from Yorkshire purposely to study under masters, and we are taking care of her, dear heart, whilst she is here. And this, ma'am, is a little friend" — and here Mrs. Silver, quite in motherly fashion, took Lizzy's hand—"the daughter of a poor tailor, whom it is my dear child's wish to save from a harsh mother and a sad home; not only, because she is so thoughtful and good, and earnest in all her duty, but that from some cause, coming up and down here very much, or the fact of an aged sculptor lodging in her father's house, she has a passion for such beautiful things as we sell—particularly, if like some Dresden china, they have flowers upon them, or are lovely in shape or fine in colour. And my niece, you see, is improving her in drawing—she being yet too young to go into the School of Design. And—and—" added Mrs. Silver, staying for breath, and tremulously asking the favour "please, ma'am, say nothing to Silver—for the poor child is here under a feint of helping me." Here little Mrs. Silver, wholly losing her breath, gasped and sank on a chair.

But she had addressed one too absorbed and earnest to hear half she said, and who now standing as she had stood when she had first entered the room, only at length repeated in a rapid, half foreign tongue:—

"I can scarcely believe my sight. I could not fancy London, or at least this part of it, held such a room." And then again, she looked around, and last upon the two sweet earnest faces near her hand.

Aye, madam! London in its poorest portions hides its fairest temples and its mightiest palaces—temples and palaces,

because the soul lives there and does its work—and in its creation of the beautiful and good has angels ministering, though dim to human sight.

The fine souled Jewess sank on a low chair betwixt the girl and child, and bowed her head in expression of feelings she could not speak. When she looked up and saw the two earnest faces fixed on hers, she no longer, as it were, knew any separating gulf of creed, or wealth, or station, but taking each a hand of theirs in hers, said with still more foreign speech and earnestness, "You must let me know you, you must let me be your friend in interest and regard. I have many worldly blessings; but I want its richest one—human love and sympathy." Speaking so, she drew nearer to Alice, regarded her striking noble face, and then looked at the easel at which she had been drawing. On it stood the outlines for four studies of the hand—the nerves, the sinews, the blood vessels, and the perfect form; and Alice seeing her regard these, said they were some drawings for an aged sculptor who had to model them in wax, for the purposes of anatomical demonstration. She said nothing of the beautiful act of charity which was to surprise as well as make easy to him some work by which he would profit. Willing, moreover, to divert attention from herself to her little friend, she showed Lizzy's drawing lesson of that morning, explained how the child had been secretly taught by Guiseppe for some time, and how her passion ran for fictile shapes, especially, if in any way decorated with flowers, either as a painting on the surface, or raised, as common with Dresden china, in relief.

"Then she loves flowers, I suppose," said Mrs. Cohen, with prompt kindness, "and has been used to a garden?"

"So far from that," replied Alice, "she has never seen any gardens beyond those of the Temple in her life, nor any flowers beside those in the baskets of the street sellers, for she has never been a mile out of London. But I promise her a treat next year, to go back with me for a few weeks into Yorkshire. There will be gardens enough, and flowers enough for her to see in our dear village."

"But you must come and see my garden—yes, this week. I live near Wimbledon, and I have an oriental passion for flowers. Since death robbed me some years ago of my husband, as well as my only child, I have lived as it were amongst them, and sought comfort in the culture of their beauty. And such comfort as I have found will be largely added to, if others can share their loveliness of scent, and shape, and colour, and profit by any lessons that they can give."

Here she repeated her invitation, fixed it for the following week, to the extreme delight of those invited, and the pride of the good little Mrs. Silver, who instantly began to think of a fitting preparation in respect to the toilet of her niece. Then the lady sat down beside Alice, and listened with interest to the story of her life, and all those influences which had made her an artist; one of which amongst others her father had told her was, that her mother for months previous to her birth could not keep from her mind the recollection of all these same riches of the Silvers, or those matchless works, in the possession of her withered suitor, Van Cratz, the picture dealer.

The fact of Mrs. Cohen's invitation to his niece and Lizzy had to be broken out gently to Mr. Silver, as it necessarily involved her knowledge of the little design; but by degrees his first cynical outburst was softened down, and in due time he even confessed to a share in his little wife's pride,—when the day came, and a carriage was sent purposely from Wimbledon to fetch them.

The Jewish lady's villa was a lovely place, surrounded by the rich scenery peculiar to Surrey, and by matchless gardens—on which lavish wealth had been unsparingly bestowed, and this, as it might be said, with an effect almost oriental, as even in the hues of the flowers the richest seemed to have been sought and placed in contrast. Indoors, the effect was the same. Draperies of the richest scarlet or purple gave a shadowy dimness to the rooms, like a cloister darkened by the hues of tinted windows, or like the inner sanctuary of some sacred temple. Gorgeous china stood on ebon shelves, or on presses of the darkest wood; the carpets might have come from the looms of Tyre and Sidon for the richness of their dyes; and in the shadows of recesses, here and there, stood, darker and more shadowy still, tall vases of antique bronze. Mirrors, there were a few which shone here and there in the dimness like twinkling stars, or met and reflected back the burnished rays of such silver vessels as were mingled with the other objects of garniture. Alike in her costume, the Jewish lady showed the same oriental love of colour. A rich scarlet, like that of the Japonica flower, fastened together her tiny cap of costly lace, and mingled with the ebon blackness of her hair, and her dress of purple silk was fastened to the throat and downwards with silver pendants shaped like pomegranates. Rubens might have garmented the loveliest of his Sabine women in the gorgeous hues that Miriam Cohen had thus put around her. Though partially an invalid, she was kind beyond expression to her visitors, showed them every rarity she possessed, traversed the garden with them, and sat between them on the same ottoman, whilst she told them of the East, in which she had dwelt during early life. Much as the noble, simple, self-reliant character of Alice had at first interested her, it was evident, before the day of visitation closed, that Lizzy would be the favourite with this new-found friend — the same intense passion for colour and decoration was a strong sympathy between them, and whilst Alice wandered away into the quiet stillness of the fields, they trod the rich parterres again and again, or went back to a new view of the fictile opulence of the shadowy rooms.

On the whole it was a memorable day to both; and when they returned home that night laden with flowers, the Silvers were full of wonder and pride, and the old Italian said afterwards, that Lizzy's breathless story was like the new reading of a scene in the Decameron.

From this time Mrs. Cohen never came to town but she brought flowers, and paid the little studio a visit, in which she took an interest which was touching to behold. If riches would have made it richer, it would have been made so by her noble hand—but she did not profess to bestow, so much as she sought the sympathy of these sweet feminine natures—the one, a girl, the other little more than a child. For this Jewess was one of the many, now scattered here and there amongst society, who, touched by the onward spirit of civilisation, sees from beyond the bounds of sect and creed, that human love and human sympathy, in their large acceptance of a civilising process, know no such limits as have been framed by the finite will of mere humanity, but only the larger sovereign law of mutual dependence, and interest, and sympathy, betwixt those created by an eternal Providence. And so, though true to the worship of her faith, she had wisely learned to look beyond its limits, and serve and sympathise in a manner worthy of these genial virtues of our nature. Thus, as the weeks wore on, if her admiration for Alice increased, her love for Lizzy equally grew, and not contented with serving his child in many ways, she procured for Wilson a permanent situation at a good weekly salary—though, to every one's astonishment be it said, a change of fortune not tending in the least degree to the poor creature's domestic peace or comfort. Mrs. Wilson went on scolding as before, as though it were a need of life, like air or water, and a constant supply in readiness a necessity.

As the weeks wore on, and the constant visits of Alice to the old Italian were productive of much artistic knowledge, a young woman, named Beaumont, came to study for a brief period in Mr. C's. academy. She was already in many points an accomplished artist, and though her father only occupied a subordinate situation in one of the Borough hospitals, she was highly educated. With her Alice soon formed an earnest friendship—a sympathy, even before it was expressed, drew them together—and when it was so, they were doubly friends, by the possession each of the same large thoughts of art, and of nature as its great fountain of originality and truth. Esther Beaumont was, moreover, highly, nay, even eruditely educated. That she and an only brother might be so, their father had toiled, and years before had accepted the situation he held, and given up at the same time the comforts of domestic life, in order to secure to his children eventually the highest advantages. Her brother, a degree younger than herself, was at Cambridge, whilst Esther under a tutor, had pursued a portion of the same studies, to which had been at the same time added an admirable knowledge of the modern languages.

THE GREAT SPHYNX OF THE LOUVRE,



A MODEL OF WHICH IS NOW BEING TAKEN FOR THE CRYSTAL PALACE, SYDENHAM.

VERYBODY who has ever visited the Louvre—and who, in these ays of cheap and rapid travelling, has failed to do so?—must have oticed among many other wondrous specimens of old Egyptian lory, the gigantic Sphynx, an engraving of which we now pre- nt to our readers. There it is! a strange record of departed ges, at once the messenger and specimen of remote time, when urope was but very partially explored, and the wealth and wisdom the world had settled in the east—there it is, speaking with ute eloquence of a country that upreared itself as the master ind and conqueror of the world, whose knowledge was prover- al, whose magnificence was extraordinary, who left behind the traces of its glory in structures which defied all time, and which still arise beneath the deep blue sky as firm and steadfast as when Pharaoh ruled, and Israelites in bitter bondage sighed for better times. Our notion of antiquity grows wondrously large in look- ing on this memento of a glorious bygone. "Antiquity!" say we, "how insignificant is our antiquity compared with this! our old families, old mansions, old customs, old habits, old laws, old cere- monies, old notions, our good old times, what are they all but the playthings of modernism, when placed side by side with this huge form, fashioned by Egyptian chisels, when time itself was young? Who made it Who first saw the block of granite

before the figure was picked out? Who was he? Where did he live? Had he the same hopes, fears, loves, hatreds, desires, and cares, as we have now, in that far-off epoch, remote in those ages which we can scarcely pierce? Was he anything like Arbaces? Could his vast and dark mind ever be fathomed? What were the glories of his home, since the waves of the black night have swept over the ancient world; and all that we can guess of its buried riches are from the shivered fragments cast upon a modern shore?" The mind goes wandering away to the banks of the Nile, as it flows on, star after star mirrored in its solemn lustre, till the busy clatter of the group about us, some in a sort of mongrel French, some with true Parisian propriety, but all cheerful, awaken us to a sense of where we are. So we go rambling on among art trophies won from time, Venuses and colossal statues innumerable.

But about the Sphynx. The images of the kings are more numerous in the gallery than the images of the gods. This beautiful sphynx is in rose granite, ninety-two feet long; its noble features are unfortunately much injured; it is intended to represent a great king, mentioned by Tacitus, Ramesis II., of the nineteenth dynasty. He was the conqueror of Ethiopia and a great part of Asia, and reigned more than sixty years, 1,500 years before our Saviour was born. He covered Egypt with sumptuous monuments; but in those days the art of the statuary, which had arrived at perfection in the nineteenth dynasty, was in its decline. There are two modillions or bas reliefs engraved upon the sides of the Sphynx. To the right, upon the base, are certain characters, which are repeated on the left, and have been translated—"The SET of Ramesis Meiamoun grants a prosperous life and stable power upon the throne of the Sun for ever." It is an invocation to the war god SET or Typhon, which was worshipped during the triumphs of Egyptian arms, but which afterwards became the object of detestation, and its figures and hieroglyphical symbols broken and destroyed. We are to have a cast of this wonderful Sphynx in our new Crystal Palace at Sydenham; there old Pharoah's glory is to become an additional object of attraction to a sight-loving people. We have made application to the authorities at the Louvre, and they, with true French courtesy, have at once acceded to our request. It is a pleasant thought that such should be the case, and that, whereas in the days when good King George was king, we did little for France and France did little for us, but interchange bayonets and cannon balls, we now are permitted quietly to take a cast of an interesting work of art in the French capital, and that M. Desachey is busily employed by the Ecole des Beaux Arts to make casts in the British Museum.

This is as it should be; but, oh, those newspapers! how they have oftentimes set people and nations by the ears. About this very circumstance, the *Siècle* spits out its venom, and hisses a surly defiance to the "rosbif." The following paragraph speaks plainly:—"Casts are at present being taken not only of the Great Sphynx, but also of a certain number of the finest statues—Egyptian, Greek, Roman, and French—the whole being destined to form part of a great exhibition to be formed in the New Crystal Palace, London. Last year the French Government made an application to the administration of the British Museum for leave to have casts taken of some Greek monuments there, which would have been useful to French artists. The board at once refused. This year the administration accords the application made to it by the founders of the Crystal Palace. The English will now soon be enabled to admire the casts of the finest pieces of sculpture in the French museums."

That there is not the slightest foundation for this statement, is evident, from the testimony of M. Desachey, who states, that, on the contrary, he has experienced from the authorities of the British Museum, the utmost courtesy and kindness, and has received permission to make casts of all the articles which he requires. What does the *Siècle* say to that? Does the *Siècle* still regard us as perfidious Albions? Does it still believe that we are the sworn enemies of France, and carry out our enmity in every petty annoyance which circumstances may suggest? Does it still bear us an old grudge, and is it willing to deny the statements of its countryman, in order to substantiate its own aspersion? If so, the *Siècle* is a world behind the *age*, and we can have nothing more to say about it. We are to have the cast of this enormous Sphynx, and Sydenham is to rejoice in its possession.

The cast is to occupy a position in the Egyptian Court, and will, no doubt, form an object of very considerable interest and attraction. What Neander says, of truth, that it is no man's own no man's indefeasible possession, but given for the use of all—is true of the beautiful in art. It is well, then to find, this friendly interchange at work, and to collect together, from every part of the world, if we can, the finest specimens of artistic skill. It is a good sign to see this spirit in operation, when men begin to overlook the distinction of colour and race, when we step over narrow boundary lines, and recognize a common brotherhood and common aim. Glorious it was to wander in the Great Exhibition, the wonderful glass hive in Hyde Park, and know that the world, at large, had helped to fill it with the choicest treasures; it was indeed—

> A rare pavilion, such as man
> Saw never, since mankind began
> To build and glaze,

in more senses than one. Never had men so recognized their own humanity. Never had men so worked in common, and bowed to the genius of true fraternity. The days are gone when national antipathy surrounded our island, as with bristling bayonets, and in their place better things have come.

The Crystal Palace was a glorious thought, and now that Rotten Row resumes its wonted aspect, our glass house, up at Sydenham will perpetuate the memory of the grand design, and have at once its lessons and its pleasures. It will, they say, outvie the Hyde Park Palace, and will open its portals to the throngs, who wearied with the labour and the toil of life, seek relaxation there. We may confidently expect great things resulting from this place becoming a popular resort. It must elevate our national taste, it must create the desire for knowledge, it must set the mental machinery in motion, and to some good end and purpose. Art science, mechanical contrivance, cannot display their wonders without doing this, and this once done, great good must result. Looking on the wonders of modern science, the curious intricacies of inventive genius, or looking at the chiselled forms of beauty and perfection which a master's hand has wrought; or looking at this wonderful enigma, the Egyptian Sphynx, which has set the wise and learned a thinking centuries agone, thoughts will be suggested and feelings aroused which will make our heads and hearts much better than they are.

If Mr. Macaulay's antiquary ever takes his seat upon the ruins of London-bridge, and looks out upon the ruined city—once the mart of commerce and emporium of the world; if he ever regards wild flocks pasturing where towered palaces arose, what will he say with respect to one great ruin, one wonderful wreck—the remains of the Glass Palace—not far from the metropolis?' And reporting thereupon before some New Zealand or South Australian Antiquarian Association, will he be able to tell how so many far-off wonders came to be there collected? And will he even guess, and duly publish in the records of his society that the strange ruin, and its strange contents, was no king's palace, or emperor's pleasure-house, but the lasting memento of a great fact, namely, that Britannia stretched out the hand of friendship to the nations, and gave a welcome to the world?

The most celebrated sphynx is that of Thebes. The name was given by the Egyptians to an apocryphal monster which had the body of a lion and a human head. The fable tells us that the monster was sent by Juno upon the Theban territory to revenge an insult offered to her dignity. The sphynx proposed enigmas to the peasantry, and devoured those who could not solve its queries. The sculptured forms of the sphynx were very numerous in Egypt, and a very remarkable one is still found in the neighbourhood of the Pyramids. It is cut out of the solid rock, and is said to have been the sepulchre of Amasis. The height of the figure is thirty-seven feet; and the upper part of the breast thirty three feet in width. The nose has been shamefully mutilated. Although the proportions are colossal, the outline is pure and graceful; the expression is mild, gracious, and tranquil; the character is African; but the mouth, the lips of which are thick, has a softness and delicacy of execution truly admirable. It seems real life and flesh.

THE DREAMER.

The following lines are the production of a poor English girl, and are intended to embody the reveries of a worker in a great factory, dreaming of a higher destiny and a nobler existence, amidst the whirl of machinery and the stern realities of one of those "hives of industry" whence England draws her wealth, at the cost of so much misery and degradation. Few of the "busy bees" that people them have ever hummed so sweet a strain, and when the great thoughts which it breathes are not only common amongst those of the authoress's class, but bear fruit in their social regeneration, the great problem of modern civilisation will have been solved,—the reconciliation of labour, with noble purpose and intellectual cultivation. Thousands will then escape that greatest of misfortunes—the possession of a mind and aspirations superior to a position which the world looks down upon:—

Not in the laughing bowers,
Where, by green twilight elms, a pleasant shade
At summer's noon is made;
And where swift-footed hours
Steal the rich breath of the enamoured flowers,
Dream I. Nor where the golden glories be
At sunset, laving o'er the flowing sea;
And to pure eyes the faculty is given
To trace a smooth ascent from earth to heaven.

Not on the couch of ease,
With all the appliances of joy at hand—
Soft light, sweet fragrance, beauty at command;
Viands that might a god-like palate please,
And music's soul-creative ecstacies,
Dream I. Nor gloating o'er a wild estate,
Till the full, self-complacent heart elate
Well satisfied with bliss of mortal birth,
Sighs for an immortality on earth.

But where the incessant din
Of iron hands, and roar of brazen throats,
Join their unmingled notes;
While the long summer day is pouring in,
Till day is gone, and darkness does begin,—
Dream I—as in the corner where I lie,
On wintry nights, just covered from the sky;
Such is my fate, and barren though it seem,
Yet, thou blind, soulless scorner, yet I dream!

And yet I dream—
Dream what? Were men more just, I might have been
How strong, how fair, how kindly and serene,
Glowing of heart, and glorious of mien;
The conscious crown to nature's blissful scene;
In just and equal brotherhood to glean,
With all mankind, exhaustless pleasure keen:
Such is my dream.

And yet, I dream—
I, the despised of fortune, lift mine eye,
Bright with the lustre of integrity,
In unappealing wretchedness, on high,
And the last rage of destiny defy;
Resolved alone to live—alone to die,
Nor swell the tide of human misery.

And yet, I dream,
Dream of a sleep where dreams no more shall come,
My last, my first, my only welcome home!
Rest, unbeheld, since life's beginning stage,
Sole remnant of my glorious heritage.
Unalienable, I shall find thee yet,
And, in thy soft embrace, the past forget!
Thus do I dream.

A GOSSIP ABOUT PERU.

We have two notions of Peru. One of these is associated with our early life, with an academy of unimpeachable properness, where everything was depressingly exact and regular, from the tall, solemn-looking doctor, the proprietor, to the rows of desks whereat we youngsters sat; it is connected with a small octavo copy of somebody's geography in brown covers, and a certain blear-eyed junior usher, and a certain phrase or form of speech, in which we were expected to reply when catechetically questioned concerning that portion of the world:—"Peru is bounded on the north by Ecuador, on the east by Brazil, on the south by Bolivia, and on the west by the Pacific Ocean." Somehow, this notion of Peru is not a pleasant one. Our other notion is far different, it is associated with old romance of Spanish enterprise and wonderful renown, of the great Pizarro, his life of victory and triumph, his death of treachery and violence, his dying contest, when with an almost superhuman energy he struggled with the men who slew him. A great glorious golden dream, a wonderful vision of wealth and power, of triumphs and disasters, an onward marching of civilisation and refinement, where all before was wild and savage; but a dream that has its nightmare horrors of cruelty and blood, and that sometimes splashes with a crimson stain its purest raiment and its noblest flag.

According to Humboldt's estimate, Peru comprises an area of 480,000 square miles. The surface of this vast territory is of the boldest and most varied description. There are three divisions which comprise the country. Western Peru and Eastern Peru, being divided by the Andes, which themselves form the third division, or mountainous district. A vast extent of country is occupied by Western Peru, no less than two thousand miles in length, a belt or zone of sand, the desolate Sahara of the west. It is only on the banks of the rivers that vegetation is seen. The cities are islanded amid the waste of sand. Yet, here are situated the city of Lima and several other large towns. Lima has preserved its own remarkable appearance which at the first distinguished it from every other city. It is built in a semi-circular form, two miles long and one and a half broad, the base being washed by the river Rimar. A wall of brick, and a dozen feet high, surrounds the city, and the houses running in straight lines divide it into a multitude of squares of various forms and dimensions. The appearance of the streets is remarkable, the houses are built entirely of timber, cane, and unburnt brick, and are rarely more than one story high, scarcely ever more than two; but they are surrounded by porticoes or open courts, enclosed by high walls and gates, which being, as well as the interior, painted with figures as large as life, and adorned with wooden pillars coloured in imitation of stone, present a very gay appearance. Most of the public buildings are of this description. The plaza or principal square is, as in other Spanish cities surrounded by all the finest edifices. The viceroy's palace, however, has certainly nothing to recommend it in the way of beauty, being an old, plastered, and unsightly structure. Wandering through its interior, indeed, one meets with evidence of departed glory and decayed magnificence; but there is a dull, dreary, mouldy cast with everything, that makes one glad to escape into the broad square and bright sunshine. The cathedral is an elegant building, with a stone front, and two towers of considerable heights; and the interior, particularly the great altar, excessively rich. Hard by the cathedral is the palace of the archbishop, a pretty building with green balconies, and there are sundry other mansions which attract the eye from their picturesque and romantic characteristics. A handsome bridge over the Rimar connects the city with the suburb of San Lazaro.

Lima is scarcely ever visited by tempests, and know as little of rain as it does of thunder and lightning. But it is remarkably subject to earthquakes. They indeed happen so frequently that the inhabitants are in continual dread of being buried beneath the ruins of their houses. Still they have their presages, one of the principal of which is a rumbling noise beneath the ground, heard about a minute before the shocks are felt, and seeming to pervade all the adjacent subterranean parts. This is

followed by the dismal howling of the dogs, who seem to give notice of the approaching danger; while the beasts of burden in their passage through the streets stop suddenly, as if it were by a natural instinct, and assume the attitude which may best secure them from falling. On these portents, the terrified inhabitants flee from their houses into the streets, forming large assemblies, in the midst of which the cries of children are blended with the lamentations of the females, whose agonising prayers to the saints increase the common fear and confusion. In a word, the entire city exhibits a dreadful scene of consternation and horror.

Since the establishment of the Spaniards in Peru, the first earthquake in this capital happened in 1582; another six years later, another in 1609, another in 1630, another in 1654, another in 1678, another in 1687, between which period and that of the great destruction in 1746 six earthquakes shook the city.



THE CITY OF LIMA.

This last-mentioned earthquake commenced at half-past ten at night, and the early concussions were so violent, that in the space of somewhat more than three minutes, the greater part, if not all, of the buildings in the city were destroyed, burying under their ruins such of the inhabitants as had not made sufficient haste into the streets and squares, the only places of safety. At length the horrible effects of the first shock ceased; but the tranquillity was of short duration, the concussions swiftly succeeding each other. The fort of Callao was dilapidated; but what this building suffered from the earthquake was inconsiderable, when compared with the dreadful catastrophe which followed. The sea, as is usual on such occasions, receding to a considerable distance, returned in mountainous waves, foaming with the violence of the agitation, and suddenly buried Callao and the neighbouring country in its flood. This, however, was not entirely effected by the first swell of the waves; for the sea, retiring still farther, returned with greater impetuosity, and covered not only the buildings, but also the lofty walls of the fortress; so that what had even escaped the first inundation, was totally overwhelmed by these succeeding mountainous waves. Of twenty-three ships, and vessels of light burden then in the harbour, nineteen were sunk; and the four others, among which was a frigate, named the *San Firmin*, were carried by the force of the waves to a considerable distance up the country. This terrible inundation extended, as well as the earthquake, to other parts of the coast, and several towns underwent the fate of Lima. The number of persons who perished in that capital, within two days after the earthquake commenced, on an estimate of the bodies found, amounted to 1300, beside the wounded and maimed, many of whom survived their tortures but a short time.

Leaving the Palace-square of Lima, and passing over the bridge to the suburb of San Lazaro, we get out into the open country of Peru. The wide plain on which the city is built gradually becomes a narrow tract between high walls of rocks, and so upward rising higher, and higher, and higher, by gorges which sink down precipitously to a frightful depth, amid an ever-changing vegetation, so that at last the banana and the sugar cane are exchanged for the scrubby bushes of the Puna. Upward, upward, higher, higher, by valleys and by table lands which form new starting-points, till by and bye, amid the most bleak and desolate scenery, in a basin surrounded by rocks, and thirteen thousand seven hundred and twenty feet above the level of the sea, is the city of Pasco. There an incessant clatter is going on, strangely different from the solemn stillness that reigns around. The mines are opened in all sorts of public places, and we cannot pass many

yards without encountering one. Some not more than twenty feet deep, some fifty, some double, some three times that number.

The miners, with some few exceptions, are Indians. They earn about half-a-crown a day, English money; but when a rich vein is opened, they are paid in ore, and are at such times handsomely remunerated.

At a distance the town presents an agreeable aspect; "distance lends enchantment to the view;" but a nearer approach shows us that it is chiefly composed of miners' huts, such as our engraving represents, or, as they have been termed, overgrown beehives. In the town there are plenty of liquor-shops, eating-houses, and cafés. The proprietors of these establishments dispose of cooked food to the Indian miners, being chiefly maize bread and slices of beef dried in the sun. Frequently the peace of the town is disturbed by a quarrel and fight among the miners who have assembled in the liquor-houses, and these quarrels are a very dangerous business, for Sheffield has taken care to supply knives of all sorts, terrible weapons, made on purpose for that market, and a quarrel hardly ever occurs without an appeal to the knife. The Indians have a mighty love for the cocoa leaf. This plant somewhat resembles the vine; the leaves at the proper season are stripped and dried and packed in bags. They have an aromatic, bitter taste. The miners chew them, and they produce the exhilarating effects of opium without drowsiness or stupefaction, but, like all stimulants, debilitate the body, and produce a nervous disorder in the system which, in its gradual growth, at last overcomes its victim, and he perishes.

The mines of La Plata, so denominated on account of the abundance of silver they contain, are chiefly situated in Charcas, Tucuman, and Buenos Ayres. The mountain of Potosi produces an enormous amount. The system of working the mines is very imperfect. From 1492 to 1803 the quantity of gold and silver extracted from the American mines was equal in value to £1,141,340,000. But the annual returns have been gradually decreasing. The yearly returns from the mines of Ceno Pasco once reached the amount of one million, six hundred and fifty thousand pounds, but the annual produce is now not half that sum. A Government establishment receives and stamps the silver before it is sent to Lima. There it is coined and then returned, and on its return is very often waylaid and plundered by the bandit montoneros.

A wonderful country is Peru—a wonderful people are they who claim it for their own. It seems to contain all the beauties and all the terrors of the world, to enclose within its mountains every climate, to afford the most striking and remarkable contrast that it is possible to imagine. Here uprise its tall grim mountains, capped with clouds, hard, cold, flinty, but diversified by strips of verdure; hot, barren, arid, but cooled by calm delicious water; here a desert as blank as the Sahara; there the most fertile country in the world, where vines, and olives, and sugar-canes, and bananas, and all sorts of tropical plants are flourishing; here a palm-tree bestowing its graceful shadow; there a heavy snow-drift and the thermometer below freezing point; here the stately palaces, the handsome bridge, the decorated street, the noble costume, the gay groups, the delightful life of Lima, the city of Pizarro; and there the wretched, miserable hovels of the toiling miners, who labour amid the noxious vapours of unhealthy mines, and are yet but a half-savage people.



THE HUT OF A PERUVIAN MINER.

A MIDNIGHT RIDE IN '98.

PART II.

The district to the south-west of the small town of Rathdrum, in the county of Wicklow, is amongst the wildest and most mountainous in Ireland. For twenty miles the traveller pursues his journey across a succession of steep bleak hills and low gloomy glens, torn by fierce torrents, till at last he finds himself in the midst of the wild mountain range which surrounds Glendalough, the sacred vale, in which for many a hundred years kings and priests of other days have slept the sleep which knows not waking.

'Tis a region little frequented. Holiday tourists every summer bend their steps in scores to the Devil's Glen, the Powerscourt Waterfall, and mayhap, push on to the Seven Churches, and then return delighted. But London boots seldom tread those vast and lonely passes and the rugged heathery hills, which lie on the confines of Wicklow, towards Carlow and Wexford. And yet, he who is enraptured with highland scenery would love to wander here. The traveller may sometimes pursue his way for miles through solitary gorges, with the mountain brow towering precipitously on either side above his head, and beneath the water dashing onward with a roar, which only makes the surrounding stillness appear greater. Anon, he winds around the side of a hill, and a broad valley lies before him, thickly planted, houses nestling among the trees, and cultivated fields extending along the side of the hill as high as the north-west wind will permit. A delightful alternation of these scenes of stern grandeur, sublimity, wildness, desolation, and picturesque beauty meets the eye, until a rapid descent brings you into the rich lowlands of Carlow, and Lugnaquilla and Luggelaw are seen only in dark and distant relief against the summer sky.

It was through scenery like this, that I found myself tramping on foot within half an hour after the occurrence described at the close of my last chapter. I was surrounded by the party who had so abruptly arrested my progress—the leader, who was styled by his companions Tom Hackett, being mounted on my mare, and maintaining a rigid silence. With the exception of occasional remarks upon the state of the roads, and the genealogy, and worldly wealth of the farmers on the road along which they were marching, little was said by any of them. Immediately after my ignominious overthrow, my pockets had been rifled of their contents, and, amongst other things, of letters from my father to Mr. Gilbert, in which the conduct and character of the rebels was commented upon in no very favourable terms. This discovery, though I was unable at that time to perceive its importance in relation to my own prospects, was anything but agreeable, as it led to my being set down as a spy and deceiver, and liable to all the consequences which such a character entails upon him who is found bearing it in a time of war. That weary night stamped itself too truly on my memory ever to be forgotten. I think we must have tramped on at least twenty miles along rough mountain roads, stony and precipitous, my thin town boots torn, my feet blistered and bleeding, and my bones aching with fatigue. Once or twice we stopped at cabins on the way-side; the inmates were rudely roused, and compelled to furnish us with any food which they had at command, and this, with copious draughts of whiskey and water, partially supported my faltering strength. When the sun began to peep above the horizon, I was blindfolded, and after another hour's march, the bandage was taken off, and I found myself at the door of a long, low-lying thatched farm-house, with a huge yard, containing a heap of manure of almost equal size in front. Three or four men were sleeping upon stone benches by the wall, and raising themselves up at the noise made by the opening of the door, lay down again to snore, upon the leader of our party exclaiming, "Fair an' aisy goes far in a day."

Upon entering, I was detained a moment in the walled-off passage, which in most Irish farmhouses shields the fire from the draught of the door, whilst one of my captors went forward into the room. I could hear a conversation carried on for a few minutes in a low tone, and then in a loud, stern order—

"Bring him in."

"Yis, giniral," was the reply; and rounding the corner, I found myself face to face with the famous "General" Holt, or, as he was better known, "Giniral Hoult."

He glanced carelessly at me for a moment, and then drew aside his coat tails, and stood with his back to the fire. I was struck upon the instant by the tremendous energy in his lips, and the sharp, piercing glance of his grey eye. He was not above the middle height, but the exquisite symmetry of his limbs, displayed fully by tight-fitting buckskin breeches and top-boots, the breadth of his chest, and the lofty and commanding air with which his head was perched upon his shoulders, gave him all the dignity which one generally connects with six feet and a half. A green coat and epaulettes, a cocked hat and feather, and a heavy broad-sword, made up the sum of his equipments. A small table with writing materials stood in the corner of the room. A few muskets and pikes were piled on a table near the lower end of the room, and on the stairs, chairs, and a settle, some dozen men were lounging wearily.

"What's your name?" said he, after eyeing me sternly for a few moments. I gave it.

"Where d'ye come from?"

"Dublin."

"An' where wor ye going to?"

"To Mr. Gilbert's."

"An' who wrote this letther?" pointing to my despatches, which lay open on his table.

"My father."

"Well," striking the table, "you'll never carry any more letthers for him nor any one else, and nayther will ould Gilbert resave anny. Ye'll die the death of a trathur this very evenin'. Take him away." I was forthwith dragged away, and confined in a sort of garret on the first and only floor of which the house could boast, except the ground one. The heat as the sun rose and shone fiercely on the roof was stifling. After several hours of painful anxiety, and horrid misgivings, my breakfast was brought me by a young woman, very fat, and very ruddy, but anything but handsome. She was coarse and deeply pock-marked,—but there was a kindly beam in her eye which made my spirits rise for the moment. There was no guard upon my room except the locking of the door, but I was effectually secured from the fact that there was no window, save a small one through which I could hardly drag my leg. I ventured to open up a conversation with her whilst she was placing my meal, consisting of mutton chops, a little too much done, upon the top of a chest, which, with a bed, formed the only furniture of the room. "Don't be cast down, alyanna bawn," said she, using a freedom which my extreme youth made excusable; "but bore a hole in the thatch and run along the roof o' the house, and ye'll find your little horse tied to a three at the far end of the grove, at sun-sit this evenin'. The road to Grana Hall is straight up the hill, and ride for your life, for the boys is goin' to burn it over the ould masther's head this very night. Don't make a noise, an' ye'll be all safe. Sure they're drinkin' an' carousin' below like wild bastes."

She ran out, and locked the door without giving me time for an answer. Towards afternoon, however, instead of thinking of making my escape, I was in momentary expectation to be dragged forth to execution, but by the sounds of merriment proceeding from the kitchen, I concluded I had been forgotten, and instantly roused myself. After breaking through the dry sod called the "scraw," which is immediately over the rafters, it was no difficult matter, though a very dirty job, to get out through the thick coating of rotten thatch, which formed the roof. I dropped in the grove, found the Lyanna attached to a tree about the place mentioned, and holding my breath while I mounted, galloped away for my life. Towards the evening, I rode up to the door of Grana Hall, and dismounting in hot haste, told my story. Old Mr. Gilbert instantly set about making preparations for his defence. Old firearms were routed out and furbished, the furniture piled up in back-rooms, the beds heaped up close to the windows ready to be used as a bulwark. The servants were all called in, and such of the tenantry as were supposed to be still untainted by revolutionary principles; a cow was killed and salted, and every other measure which prudence or experience could suggest, was taken to prepare for a long siege. The ladies were placed in the cellar, with a carpet, a bed, a table, and a few chairs, and some refreshments.

All this was done before nine o'clock, and then for the first time I had a few minutes' leisure for rest and conversation. The Misses Gilbert were dreadfully alarmed, their father was bluster-and blowing like a porpoise, and the retainers, some a little pale at the thought of a fight in earnest, and others panting for the fray. The house was a large square building, covered on all sides from the roof to the ground with slates. A grove of trees at the end was felled to prevent its affording shelter to the be-siegers, and all the doors firmly barricaded.

But it was evident that if we were attacked by a strong force, and that they possessed any ordinary amount of bravery and per-severance, it was impossible that we could hold out, considering the state of our defences. We came to a resolution, which I am now surprised we did not think of sooner, and that was to despatch a special messenger to Hacketstown for assistance from the garrison. He mounted and rode off, and we watched him from the window riding down the avenue to the road. He had not reached the gate, when we heard the sharp crack of a musket, and saw him fall heavily from his horse. In a moment afterwards the rebels were seen advancing along the lawn in a dense column and at a rapid rate.

We all ran instantly to our posts, and had no sooner done so than a shower of bullets rattling on the slates told us that our only hope now lay in our own courage. Upon coming up within musket shot the besiegers scattered themselves behind the hedge-rows, ditches, out-offices, and haystacks, those who had guns firing as often as they could reload, and those who had not "doing" the yelling and execration for the others. The scene now became really awful; to any one not engaged in the conflict it would have been splendid. To a day of unclouded splendour had suc-ceeded a night of murky darkness. The clouds lay on the sky in heavy black masses, or moved lazily before a breeze rising with a low murmuring sound; and through this gloom the flash of every musket, in those days of flint locks, was seen with the distinctness of a watchfire. Ever and anon, as our party yelled out, "Croppy, lie down!" "Orange, lie down!" came back with rageful loudness from behind the walls and trees. We had divided ourselves into parties for each room, the best shots taking their places at the windows, and the others loading. The marksmen sheltered them-selves behind a pile of bedding, and strictly reserved their fire until there was a tolerable certainty of hitting—a precaution rendered absolutely necessary in consequence of our limited supply of ammunition. Despite our care, however, it was not long before two of our best men were struck down by the deadly skill of the Shilmaleer marksmen, who abounded in the ranks of the rebels, and whose long guns, used in shooting the wild ducks in the marshes on the Wexford coast, carried certain death at one thousand yards.

The firing went on for two or three hours, and at last that of the besiegers totally ceased; but I believe the pause was more dreadful to us than the fury of the engagement. The darkness, the silence, the uncertainty, the fear of a *coup de main*, and the distinctly heard groans of the wounded men from the adjoining room had each something terribly disheartening. The cause was soon made apparent by the approach of two parties at a swinging trot, each carrying a ladder covered with long planks to protect them from our fire. They succeeded in planting them against two windows, and a great number began to mount, every man, to our great surprise, having a pillow in front of him, which he pushed up to shelter him as he ascended. This device, how-ever, proved futile, as we picked off the pillows with the point of a long pike as soon as they got near the top, and then shot down their bearers.

It was just midnight, and the rain was beginning to descend in fearful torrents, when we discovered that we had only six rounds a man of powder and ball remaining. Old Mr. Gilbert began to lose heart, and offered twenty pounds to any man who would ride to Hacketstown and bring on a troop of dragoons to our assist-ance; and, if he fell, to provide for his family, or any one who was dependent on him. There was a general pause. None liked to run so fearful a risk as running the fire of an unseen enemy scattered all over the fields for half a mile around, and doubtless in great force along the whole line of road. Whether it was infatuation, or foolhardiness, or want of sleep that made me volunteer to undertake this duty, I have never been able to tell; all I know is that it was not really devoted courage.

The horses had been brought into the kitchen, and were there standing in a profusion of straw. The Lyanna had been well rubbed down, and from what I knew of her mettle I felt assured she was again ready for the road. In the excitement of the moment I hurried off, and in a few minutes she was saddled, led out into the yard, and I mounted. I took a hurried leave of the old gentleman, the gates were suddenly opened, and out I dashed. The yells and execrations that met my ear when I issued on the lawn, and the moonlight fell on me through the drizzling rain, sounded like my death knell; and throwing myself forward on the mare's neck, galloped for dear life. I had nearly reached the gate, and was congratulating myself upon my escape, when a dozen men started up like ghosts, shut the gates, and closed to receive me on their bayonets. Luckily there was still room for presence of mind; and suddenly turning aside I gallopped for a few strides across the green sward, and, clearing the wall at a bound, fell out upon the road. I rose with the blood streaming from my head, scrambled on Lyanna's back, and away we went once more, the bullets flying pretty thickly, but gradually decreasing, until a stray shot, fired at random from a Shilmaleer gun, was the only evidence of the close proximity of an enemy. But on coming round a sweep of the road which brought me in the rear of the hall, the noise of the firing came distinctly up the glen, and I could still hear the faint cheer of the besieged, which was almost the only thing they could now send back to the crashing volleys which rained upon the house, and which entering at the open windows struck the plaster of the walls and ceiling in crumbling masses.

I tied a handkerchief round my head, which stopped the bleed-ing from the cut received in my fall, and galloped on. I suddenly heard the sound of a horse's footsteps behind me. I put the Lyanna to the top of her speed, but still my pursuer seemed to gain on me, and, at last, when he seemed to be within pistol-shot, he roared, in a hoarse voice, "Ride aisy, I tell ye; ain't I ould Nick Timmins, that was born an' bred in Grana Hall; bear ye're mare down the hill, and take the ditch at the cross roads, or ye'll go right into Darby Kelly's ould house, and be spitted afore ye know where ye are. Pull aisy, I say!"

Thus adjured, I did "pull aisy," and was very soon joined by the speaker—a thin, tall, but wiry man of about fifty-five, mounted upon an equally gaunt, high-shouldered, rough-going horse, one of those old Irish hunters, which for courage and endurance, particularly in crossing a rough country, have perhaps never been surpassed. He told me that he feared I might go astray, and fall into the hands of some of the roving bands of brigands which had now overspread the country, and had there-fore broken cover soon after my departure and followed me.

The moon soon broke out in splendour, and we crossed the ditch at the turning at full speed, and struck out boldly through the meadow below, taking every fence and hedge, as if following the hounds in broad noonday. At the foot of the hill we plunged into the river with a splash and dash which roused the cattle in the adjacent fields from their midnight slumbers, and sent them can-tering wildly about in every direction. After two miles we once more reached the road, and in half an hour thundered up the silent streets of Hacketstown; and, after answering the sentinel's challenge, were admitted into the presence of my old friend Captain Hudson. He hastily donned his uni-form, the trumpet sounded the *reveille*, and in fifteen minutes we were once more on the road, going at the top of our speed towards Grana Hall. When we reached it, the Lyanna was well nigh spent; the out-offices were in flames, and a heap of burning straw piled up at the hall-door had already sent the flames up the staircase and through the dining-room. We charged up the lawn, with loud hurrahs, the rebels slowly retired—the terrible Shilmaleers knocking many a fine fellow out of his saddle as they retreated, and, rushing into the house, we soon extinguished the fire and put all to rights. The troops remained till morning, and then a company was left *en permanence*. I went to bed and slept soundly, and in the morning I received the hearty thanks and congratulations of father and daughters. Before the end of the summer one of them was my wife.

INTERIOR OF AN ITALIAN STUDIO IN THE SIXTEENTH CENTURY.

THERE are certainly some things in which we are not altogether equal to our forefathers, though in most cases we pride ourselves on having far surpassed them. Most of the wonderful achievements both in the arts and sciences which followed on the revival of learning, have lost in these latter days the charm of novelty. early painters had a higher and nobler idea of their mission. Most of the paintings of the ancients had been lost; they had nothing to guide them, but were compelled to cut a path for themselves through the wilderness which then overspread the world. They, therefore, went to their work, not so much as an agreeable pursuit,



STUDIO OF BACCIO BANDINELLI IN THE SIXTEENTH CENTURY.

The wonderful sculptures of Greece, and the great works of masters of the fifteenth and sixteenth centuries, have for ages so forcibly impressed the minds of succeeding artists with the idea that in them perfection has been attained, that they have sat down in despair of ever doing more than imitating them. The but as a high moral and religious duty, and in all their compositions it is easy to perceive that the religious sentiment has had a powerful influence. The difference in the spirit which animated them, and that which now animates their successors and disciples, has been well illustrated by two engravings, with one of which

we now present our readers; the other will shortly follow. The former, the size of our page obliges us to divide into two parts. It is by Bandinelli, and is thus described by Heinecken in his Dictionary:—"A Drawing Academy, in which the teacher is seated to the right, and behind him the figure of Baccio dressed as a knight, and having a cross upon his breast. He is accompanied by three other figures, and opposite are three pupils drawing by the light of a lamp; and to the left may be seen others beside a fire-place, over which a lamp is suspended also. In the corner of the wainscotting, besides a great number of models, there is a book with these words on the leaves, *Baccius Bandinellus inv. Enea Vigo Parmegiano sc.*" The plates passed in succession into the stock of a great number of print-sellers.

Heinecken has also described another academy of design belonging to Bandinelli. "The professor is seated to the right of the engraving, by the side of a pupil who is drawing, and he holds a statue in his hand. Behind him is a boy. At a table are five pupils who are drawing from the round, by the light of a candle. Under the table is written—*Academia di Bacchio Brandin in Roma in luogo detto Belvedere*, 1531, engraved by Augustin the Venetian."



DRAWN BY BANDINELLI.

The escutcheon of a Knight of St. Peter, which Bandinelli has placed upon his breast, and over the chimney piece, shows very clearly that the studio reproduced in our engraving was his own. It is well known that to reward the artist for his beautiful picture of the Martyrdom of St. Lawrence, admirably engraved by Mare Antonio, Pope Clement VII. had conferred on him the title of

Knight of St. Peter. The date of this event does not leave any room for the supposition that Bandinelli has represented in this engraving, that studio of Belvedere, which he fitted up for the execution of his famous copy of the Laocoon, of which Titian sketched on wood so lively a miniature in the shape of a group of monkeys. It appears rather to represent his studio at Florence. The simple but dignified air which reigns in this scene of severe study and contemplation is well calculated to heighten the respect with which the Florence school must ever be regarded, the nurse of so many of the great geniuses of Italy, Giotto, Orcagha, Gozzoli, Masacio, Donatello, Fra Beato, Fra Bartolomeo, Leonard da Vinci, Michael Angelo, and Andre del Sarte.

No real admirer of the great masters of the sixteenth century can look without emotion upon this sanctuary of art. In this humble chamber every face and attitude of the inmates betoken their ardent worship of the beautiful. What diligent application—what wrapt meditation—what silence—what dignity in all the figures! What a contrast this spectacle presents to the noise, and tumult, and disorder of modern studios! There is a wide difference, also, as might be expected, between the elevated character of the works with which the sixteenth century has delighted the world and that of the productions of the present day, which, though ably executed, are for the most part wanting in inspiration, soul, and genius. Compositions of the second order, even, belonging to the former period, are impressed with this high sentiment of an art mission.

We may add also, that, in the sixteenth century, there was more of fraternity and more of unity, so to speak, in the arts. On the one hand, philosophy, history, literature, and mathematics were studies obligatory upon young artists; a painter was not then reduced, as now, to reading in haste a few pages of poetry or history at the very moment of commencing to execute a subject, whether it be ordered or of his own choice. These late superficial and incomplete studies can never supply the place of early application, diligent reading, and serious meditation. On the other, no artist confined himself to one branch of art. All studied and practised at the same time sculpture, architecture, working in the precious metals, the casting of great guns, and the construction of fortifications. Nearly all the painters were educated in the workshops of sculptors; and it is well known that the most illustrious sculptors issued from the workshops of goldsmiths; amongst the latter, it is sufficient to mention Luca della Robbia, the Ghirlandaio, the Verocchio, the Pollaiuolo, the Donatello, the Ghiberti, the Brunelleschi, Benvenuto Cellini, and Bandinelli himself, who, before being placed under the tuition of the sculptor Rustici, the friend of Leonardo, had for a long time studied in the rich shop of his father Michelagnolo di Viviano, an able chiseller, carver, enameller, engraver, and engine-turner.

"Baccio was not long in showing," says Vasari, "that he preferred sculpture to working in gold. At Penzirimonte, an estate which belonged to his father, he sketched the labourers and farm animals. At the same time he went every morning to Prato, to copy the works of Filippo Lippi in the parish church. He handled the graver, the pen, and the black and red crayon—a soft stone found in the mountains of France, with which one could draw with considerable delicacy, with equal dexterity."

At Florence, drawing, the foundation of all art, occupied every artist during his infancy; his days and nights were spent in practising it. All might have carried a lanthorn before them, like Michael Angelo. The pupils passed frequently from one studio to another, and the masters—with the exception, perhaps, of Baccio Bandinelli, who was more disliked than any other man in Florence, for his arrogance, baseness, violence, and cowardice—loved and protected the pupils who were to be the heirs of their traditions and their glory. Although Lorenzo di Medici had established in his palace, and in the gardens of the square of San Marco, a school of painting and sculpture, by collecting at great expense the most valuable of the antique remains, and confiding the whole to the direction of Bertoldo, a worthy pupil of Donatello, it was chiefly by frequent intercourse with able artists that young learners sought to familiarize their minds with the principles of art. The memoirs of Benvenuto Cellini (if we make allowance for their faithfully reflecting all the faults of their author), present a true picture of the lively and ardent lives of the Florentine youth, who, however, sometimes, unfortunately, carried the love of glory so far that it degenerated into brutal jealousy, as was frightfully proved when Michael Angelo had his nose broken by a blow from Torrigiano. The drawing of Bandinelli is an admirable commentary upon the best part of the curious autobiography of Cellini. One might almost fancy that he here recognised in the midst of his comrades the proud and lively goldsmith, who had received his first lessons from Bandinelli's father, and who in his fifteenth year passed into the studio of Marcone. "This was an excellent artist," says he, "and a very worthy man, high spirited, and generous in every respect. My father would not have him allow me any wages, as was customary with other workmen, for this reason, that since I applied myself to this art, I might likewise have an opportunity to draw whatever I thought proper. To this arrangement I readily acceded, and my worthy master was much pleased with the bargain. He had an only, but illegitimate son, to whom he often directed his orders on purpose to spare me. So great was my inclination to improve, that in a few months I rivalled the most skilful journeyman in the business, and began to reap some fruits from my labour." It was, in fact, customary for famous artists to give the pupils whom they received into their studios a salary. They made use of them and of their knowledge, and did not hesitate to employ them in the most important and delicate works. Who does not recognise the hand of Michael Angelo in the chapel of Santa Maria Novella, painted by Ghirlandajo? They took them with them also from town to town, and often into foreign countries.

This custom explains the memorandum in the handwriting of Michael Angelo's father, in the register-books of Domenico Ghirlandajo, and which was in Vasari's time still in the possession of the heirs of the latter. "1488. Mem.—This first day of April, I Ludovico, son of Lionardo di Buonarotti, place my son Michael Angelo, with Domenico and David, sons of Tomaso di Currado, for the three years next ensuing, with the understanding that the said Michael Angelo is to reside with them during the aforementioned period, in order to learn painting, to study, and do whatsoever his master may order. The said Domenico and David are to give him during these three years twenty-four florins, by way of salary, divided in the manner following—that is to say, the first year six florins, the second year eight florins, the third year ten florins, making in all the sum of ninety-six pounds."

On the same page appears the following in the same handwriting:—

"The above-named Michael has received this 16th day of April two florins in gold, and I, his father Ludovico, son of Lionardo, have received on his account twelve pounds."

No artist so well embodied the great versatility common at the time than Michael Angelo. A few lines from Lanzi on this subject may not be uninteresting. He was educated in the school established by Lorenzo di Medici, to which we have already referred, and this merchant prince afterwards retained him in his house, placing him at the same table with his own sons, with Poliziano, and other learned men who then graced his residence. During the four years that he remained there he laid the foundation of all his acquirements; he especially studied poetry, and thus was enabled to rival Vinci in his sonnets, and to relish Dante, a bard of a sublimity beyond the reach of vulgar souls. Bonarruoti studied design in the chapel of Masaccio, he copied the antiques in the garden of Lorenzo, and attended to anatomy, a science to which he is said to have dedicated twelve years, with great injury to his health, and which determined his style, his practice, and his glory. To this study he owed that style from which he obtained the name of the Dante of the art. As this poet made choice of materials difficult to be reduced to verse, and from an abtruse subject extracted the praise of sublimity and grandeur, in like manner Michael Angelo explored the untrodden path of design, and in pursuing it, displayed powers of execution at once scientific and magnificent. In his works, man assumes that form which, according to Quintilian, Zeuxis delighted to represent; nervous, muscular, and robust—his expression full of vivacity and energy.

DREAMLAND.

Charles Lamb regarded bed as a very regal domain, where a man might toss and tumble at his pleasure, and, with his bed-curtains drawn close around, be monarch of all he surveyed. And Tom Hood, in his Lay of Killmansegg, addresses bed most lovingly :—

"Oh, bed, bed! delicious bed!
A heaven on earth to the weary head."

And somebody has told us that balmy sleep is kind nature's sweet restorer, and our great dramatist has taught us that gentle sleep is nature's soft nurse that comes to weigh the eyelids down and steep the senses in forgetfulness. Sleep is a common blessing, none the worse for being common; for when the solemn night comes on, birds roost in the trees, fishes sleep in the brooks, cattle rest in the pastures, and man forgetting, and willingly forgetting, the noise and strife and struggle of his life of perpendicularity and motion, lies down on beds or truckle beds to horizontal sleep—

"to sleep, perchance to dream."

What a wonderful place is Dreamland! It is more mysterious than all the wonders of the thousand and one nights. Time and space are there annihilated; the mind may wander whithersoever it will, and all through that fairy domain where Queen Mab reigns and there her varied agency employs;—the thinking faculty, released from common drudgery, goes onward, onward, onward, knowing no barrier, and never halting in its course.

We lie down. Everything is very silent. We hear the ceaseless ticking of the clock, and wonder when we shall go off. We hear the church clock strike, we listen and count the hour. Another clock catches up the sound, and tolls the hour; we hearken to find if yet a lazy clock still lags behind its fellows; no. We grow restless, we become confused, we still hear the ticking of the clock, but the vibrations are becoming more and more indistinct. We are going off. We become more and more confused. We forget where we are. We are off. Where are we?

In a room that we knew many years ago, that we have not been thinking about, that we had almost forgotten; but there it is, clear and plain, before us. There is the window with the blind half down as we saw it last, the same frayed tassel, the same red and black carpet, the same steel fender, the same old picture bought in Drury-lane, the same library table, with the leather cut and rubbed and sorely damaged, everything just as we left it. More than that, there is the same proprietor, Old Leighton as we called him, with his silver hair hanging on the collar of his coat, and his silver spectacles thrust high upon his wrinkled forehead, talking is he earnestly, eloquently, and to us. We know that he has been dead these ten years, we are sure of that, and the feeling is anything but pleasant. We are afraid to say so, afraid to ask him anything about his sojourn in the unseen world; it seems that we should be taking a liberty to put any such queries, and we answer as well as we are able. But the matter becomes alarming; for as we turn slightly toward the door, that door is opened, and another man, whose funeral we attended but a week ago, comes in with a pleasant smile. Then a frightful thought comes into our mind that both of those men died unfairly, that both were slain by cruel hands, and that we did it, that we are guilty, that our soul is stained with blood. How shall we escape? We dissemble ease and gaiety, and laugh as of old, but we shake in every limb. He who entered last is looking out into the crowded street, our old friend in the spectacles has turned to the mantelpiece; we are determined to fly, we must, we will. Away we go, down the steep stairs at a bound, out into the busy street away, away, now up against the houses, now out amid the whirling carriages, now almost down, now roughly handled, but onward still, for as we live they are in pursuit, and our hair rises and our blood creeps. We have left the busy town behind us, and are out on the dusty country road. It is night! the stars keep watch, and far away we hear the sound of feet, onward, onward, as if we were the fabled Jew who never stops to rest. There is a deep, thick, shadowy wood, where giant trees stretch out their arms, and stems and branches twist together in a strange mysterious fashion, and there is silence; we rush forward, away, away, down dim mysterious aisles, and solemn dells; but hark! they are still behind, and we gnash our teeth, and strive to cry aloud, but there is a stifling sensation in our throat, and we cannot shout, and, flinging ourselves upon the ground, we press our face to the sod, and refuse to look up. But gradually, confusedly begin to know that the clock is ticking, and that we are still the same guiltless Jones that we were an hour before.

Who has not at one period or another felt these or similar sensations! A poet makes Eugene Aram tell to one of his scholars the fearful story of his crime, and tell it as a dream. In dreamland we do not know where we are going to, our mental ship has no pilot and no chart, our mind is governed by no rules; and though all the day long it has been as quiet a jade as ever worked in harness, becomes at night Pegasus for the nonce, and scampers where it will, or upwards flies to brighter scenes in the world above, or carries us away, like another Mazeppa, into strange and dismal forests which make the heart grow cold. We lose our present self, and play fantastic tricks until the morning. No story of witchcraft and of aged dames riding on broomsticks through the air could be more wonderful than this. We are at the gold diggings, playing the old game of Tom Tidler's ground, and picking up gold and silver, but we came over in no emigrant ship. We are in the east, amid dark faces and picturesque turbans, and dear old memories, but we did not come by the Oriental Steam Packet Company. We are in the frigid regions of the north, huge ice islands are about us riding triumphant on the deep, deep sea; but we came there by no regular method, we flew there like a bird. We are in mines such as were disclosed to the man in the northern legend—trees effulgent with diamond fruits, pillars of gold and precious stones, fountains with water of a million hues, and over all a floating and delicious music instead of air. Well, we did not descend any shaft, we sank through the ground like a trick in a pantomime.

And it is not only space that is destroyed, but time is overleaped at a bound. We live in all ages as well as in all countries; backwards or forwards, this way or that way, it is all the same to us. And not only so, but the manner in which we compress in our dreams is the most marvellous of all. A few seconds make up a lifetime. A sound suggests a train of thought, and ere the sound has died away the train is all complete.

Strange old stories there are of dreams that have come true, that have been fulfilled to the very letter. Some, indeed interpret dreams in a variety of ways, in which every object is rendered typical, and the whole thing resembles the picture-page of an hieroglyphic almanack; and Lover tells us that

"Dreams always go by contraries, my dear."

However it may be, and without hazarding a word about it, we must all admit that dreams are very mysterious; that the mind, at liberty to wander where it will, plays wondrous tricks with us all. Strange it is when regal Mab rides forth, drawn with a team of little atomies across men's noses as they lie asleep, galloping through lovers' brains, and over courtiers' knees, and lawyers' fingers, and soldiers' necks, and ladies' lips; strange how she rides:—

"Her waggon spokes made of long spinners' legs;
The cover of the wings of grasshopper;
The traces of the smallest spider's web;
The collars of the moonshine's watry beams;
Her whip of cricket bone; the lash of film."

Some dreams there are which we would not willingly forget, some, indeed, that we would willingly make reality if we could: a beautiful thought of this kind is given by Coleridge in his Ancient Mariner, when, as the ship of death comes near the shore, and one familiar object after another is seen, the wretched man cries out:—

"Oh, dream of joy, is this indeed
The lighthouse top I see?
Is this the hill? is this the kirk?
Is this mine own country?

We glided over the harbour bar,
And I with sobs did pray,
'Oh, let me be awake, my God,
Or let me sleep alway.'"

THE FAMILIES OF PLANTS.

APOCYNEÆ.

Corolla hypogynous, regular, five, rarely four-lobed. Stamens five, rarely four, inserted on the corolla, alternate with its

Fig. 239.



1. Tabernæmontana Longiflora. 2. Isonpelhia Grata.
3. Dipladenia atra Purpurea.

lobes. Ovaria two, and each one-celled, or one and bilocular;

Fig. 240.



Carbera Atovai.

ovules usually indefinite, rarely solitary or few. Fruit follicular, capsular, baccate, or drupaceous, double or single. Embryo foliaceous. Leaves entire, generally opposite, without stipules.

Fig. 241.



Tanghenia Venenifera.

Of these plants, Africa must be considered the great field especially its southern point, where vast numbers of the

Fig. 242.



Plumeria.

succulent species occupy the dry and sterile parts of that remarkable country. They all abound, also, in tropical India an

New Holland, and in all the equinoctial parts of America. Two genera only are found in northern latitudes. Of these, we give several examples (fig. 239).

The *tabernæmontana utilis* is very remarkable as the *hya-hya*,

Fig. 243.



Asclepias Douglasii.

or cow-tree of Demarara. Humboldt supposes it to be peculiar to the Cordillera of the coast of South America, particularly from Barbula to the lake of Maracaybo. It rises to a height of from thirty to forty feet. It yields a milk tolerably thick, glutinous,

Fig. 244.



1. Eustoma Exaltatum. 2. Prepuas Hoskeraina.

perfectly bland, destitute of acrimony, and possessing an agreeable and balmy smell. It forms a principal article of food with the negroes, and poor people who work in the plantations. They take it along with bread, made either of the root of the cassava, or of Indian corn; and it is said they grow sensibly fatter during the season in which the milk is obtained in the greatest abundance. But it is not in its appearance or taste alone that this milk resembles that of animals, but in its possession of a strongly-animalized substance, which separates from the liquid on its

Fig. 245



1. Ipomœa Tyrianthina. 2. Convolvulus Tricolor.

exposure to the air, and which the inhabitants, regarding it as analogous to cheese, name it accordingly.

The *cerbera atovai* (fig. 240), is employed by the fishermen of Brazil to stupify the fish. The *tanghenia venenifera* (fig. 241), is the plant which yields the celebrated ordeal nut of the island

Fig. 246.



Cuscuta.—The Dodder.

of Madagascar. We add only one more specimen of this remarkable family (fig. 242).

ASCLEPIADEÆ.

Corolla hypogynous, gamopetalous, regular, five-lobed. Stamens five, inserted into the base of the corolla, and alternate with its segments (fig. 243). Ovaria two; ovules indefinite. Seeds in-

definite, pendulous. Embryo straight; radicle superior. Leaves entire, usually opposite.

This order of dicotyledonous plants may be known from all others by the single character of its grains of pollen adhering together within a sort of bag, which occupies the whole of the inside of each cell of the anther; and when it falls out, sticks to glands of a peculiar character, occupying the angles of the stigma. Asclepias is the name of the largest genus of this order. It consists of shrubs or herbaceous plants, abounding in an acrid and usually milky juice. Some of the species of Asclepias have emetic properties, and have been used as substitutes for ipecacuanha.

GENTIANEÆ.—THE GENTIAN TRIBE.

Corolla hypogynous, gamopetalous. Stamens inserted in the corolla, alternate with the segments, and equal to them in number. Ovarium single, of two carpels. Fruit capsular, or fleshy, one-celled, usually two-valved. Seeds small, indefinite. Embryos straight, in the axis of a soft, fleshy albumen.

This numerous order of herbaceous plants extends over almost all parts of the world, from the regions of perpetual snow on the summits of the mountains of Europe, to the hottest sands of South America and India. They do not appear in the flora of Melville Island; but they form part of that of the Straits of Magellan.

The chief characteristic sensible property of this family is an intense bitterness, which resides both in the stems and roots, rendering them tonic, stomachic, and febrifugal. Many of the species are beautiful in the hands of the cultivator. The prevailing colours are red and blue. We give two examples of this tribe (fig. 244): the second represents a specimen recently brought from Brazil. Several species of gentian are met with in Britain: as the dwarf gentian (*G. acaulis*), spring gentian (*G. verna*), and field gentian (*G. campestris*). *Gentiana chirayeta* is used as a tonic in India, and has been introduced as such into the British Pharmacopœias.

CONVOLVULACEÆ. THE BIND-WEED TRIBE.

Corolla deciduous, regular, five-lobed. Stamens five, inserted on the base of the corolla, alternate with its segments. Ovarium with two, three, or four cells; ovules erect definite. Fruit capsular or baccate. Embryo curved; radicle inferior.

These plants are very abundant in all parts of the tropics, but rare in cold climates, where only a few are found. They twine round other shrubs, or creep among the weeds of the sea-shore. The *Coleca Scandens* (fig. 245), is a native of Mexico.

Their roots contain a resin that is aperient; of this we have examples in the jalap and scammony; the former a native of Xalapa, a province of Mexico, the latter is brought here from the Levant. It is worthy of remark, that though the words Xalapa and jalapa are differently written, the pronunciation is the same; for, among the Spaniards, the j and x have the sound of an h in horse, so that they are both pronounced halapa. The roots attain so great a size, as in some instances to weigh fifty pounds; but those which are brought to this country seldom weigh more than six or eight ounces, for the smaller roots contain more of the specific properties of the drug. Nor are these the only plants of the family used in medicine; for, in most countries, where any of the species are indigenous, they are employed by the natives. A friend of the writer found that the *Convolvulus Braziliensis* was in some places called a jalapa, and was sometimes used as the jalapa itself. This is very handsome, with broad leaves, and large purple flowers, and with a long scrubby stem, which lies among the white sand of the sun-dried beach, in many of the tropical regions.

In England we have three species of convolvulus. Miss Twamley has thus rendered the plants of the *C. arvensis* vocal; they may be observed entwining the culms of corn, and producing leaves which are shaped like an arrow:—

"We merry flowers are running
The meadow mazes through,
And be farmers e'er so cunning,
We're as cunning too.

"Now up an ear of barley
We nimbly twist and twirl,
To deck its brown stem early
With a wreath of pink and pearl.

"We climb the poppy's hairy stalk,
And with wrath he grows more red,
To see us, weeds of the meadow-walk,
Peer up above his head."

The great bindweed, *C. sepium*, is common in hedges; its leaves appear as if a piece had been cut off behind. The sea bindweed, *C. soldanella*, is found on the seashore; the leaves are kidney-shaped; they lie on the ground, and show a disposition to twine. The flowers are large and rose-coloured, with yellow plaits.

To the family of the *convolvulaceæ* belongs the dodder (fig. 246), which is externally related to it by the twining of its stems. It derives its support from the plant on which it grows: whether it borrows any of its sap, some suppose might be questioned, since many plants run, vegetate, and flourish merely from the nutriment obtained from the surrounding atmosphere. But minute examination leads to a contrary conclusion, as little vesicles or papillæ have been observed, which attach themselves to the stalk of the plant, and most probably derive from thence the dodder's subsistence.

DIARY OF A VOYAGE TO AUSTRALIA.

BY WILLIAM HOWITT.

PART I.

THE SHIP KENT.—*Wednesday, June* 16th.—At sea for eight days. The stormy petrels did not come for nothing. In a very few hours after they shewed themselves it became stormy, and has continued so ever since. Both they and the Bay of Biscay have asserted their character. The worst of it has been that the wind has been contrary, so that we have made but very little way. I suppose we are yet only off the coast of Spain. We now know pretty well what the Bay of Biscay is. We have had between three and four days and nights of regular storm; the wind roaring, the waves running mountains high, and the vessel rolling and tumbling about in the most astounding manner. It has been a wretched time for the people below, and such of them as now and then come on deck are drenched with the waves that come over the ship. For our part, we have been much better off than most, because we have not been sick, and have been able to get on the poop, which, until last evening, the waves have never dashed over. But we have often been sent floundering across the deck, and at our meals it requires the greatest ingenuity to get anything into our mouths, whilst the crash and smash of the crockery is something extraordinary. My face has been so burnt and swollen with the fierce winds, that yesterday I could scarcely see out of my eyes. To-day it is much better, and though we have not a moment's quiet night or day, but are always *quevelling* up and down, and rolling to and fro, yet we are quite jolly, and live very well. The ship rolls so much at this moment that I can hardly write.

On Sunday morning the service was read on deck by the doctor, and a good number of people came round, the captain standing by the doctor. Yesterday there was a funeral on board. It was that of a child of four months old. It had the measles; but the doctor thought that a plate, which had fallen on its head in the concussion of the ship, was the real cause. You know the ceremony on such occasions, as it has often been described. The body is usually wrapped in a hammock, with a shot attached to the feet. This was wrapped in linen; it was laid on the grating of the gangway. Part of the bulwark was removed, and the part of the grating bearing the body protruded over the side. At the proper part of the service it was slid off into the waves, and the service went on to the end. The spectators then hastily dispersed, and the parents withdrew to their cabin. The old captain was affected to tears, as he always is on such occasions.

Yesterday evening we had a glimpse of the coast of Spain. This morning it has been raining, and we have remained much in the cuddy, where we discussed teetotalism and national education. It is now clearing up a little; a numerous shoal of porpoises has gone leaping and tumbling past; and as to-morrow the moon changes, we hope for better weather.

17th.—Looking at an article in "Chambers' Papers for the

People," vol. vii., which is on board, I see a diagram, which shews precisely our situation. Two gales are blowing across from the west into the Bay of Biscay, and one from the north-east past Ireland, producing a jumble of seas over a wide space which we have had the ill-luck to be traversing. The sufferings of the people below are inconceivable. There is a child now crying which seems to have cried incessantly since we came on board. But the weather has happily now cleared up; we have a fair wind, and are going on our way bravely. Mother Carey has recalled her chickens. Last evening there was a section of a rainbow, and a "rainbow at night is the sailor's delight." Summer lightning flashed in the east; the stars came out all over the heavens with a southern splendour, and a mild gale promised a more genial time. There is yet, however, a considerable swell, and the day is fine, the sea of a beautiful blue, crested here and there with white. We have passed and signalised the *Beatrice*, from Liverpool, bound for Pernambuco, out nine days.

The people are all again creeping out of their dens, and I can hear the preparatory tuning of a fiddle. Some of the passengers, however, have never yet been seen since we set sail. Mr. —— is abroad again, has got over his sufferings, and seems quite brisk. A. and C. are as jolly as ever, and seem highly to enjoy the voyage, storm and all. We live very well, the captain cheerful and obliging, and we are now looking forward to a pleasant time.

Evening.—We have had a splendid day. We seem to have left the stormy seas. The sun has now a southern warmth, and we go on through a dark blue shining sea before a pleasant breeze: still we are only parallel with the coast of Portugal. But one fine day has done wonders in this little world of the *Kent*. Scores of people, men, women, and children, have arisen out of their hidden dens, where they have suffered inconceivably. Imagine three hundred people, for the most part totally unaccustomed to the sea, and having formed to themselves no real idea of what they were entering upon; many of them fancying that they would find all the conveniences, which even the humblest of them had on land; that they were, as some of them said, to have people to wait on them when they were sick, and so on—imagine these people in their little crowded cabins all at once shaken as by an earthquake; everything tossing and tumbling about them; their pots, tins, clothes, boxes, everything taking a leap together as if mad, coming some down on their heads from above, some banging against their legs: overhead, a thundering of winds, a booming din of waves, a confusion of voices—shouting, bawling, shrieking, as if the vessel were going down, and scores of them believing it was; the captain shouting hoarsely and, in appearance, angrily as the storm itself; the mates repeating his commands; the sailors running in crowds, chattering, bawling, and making a deafening racket, as if their exertions could only save the ship if put out to the utmost;—imagine, amid all this, the mass of human beings thrown into one universal weltering confusion, sick to death and incapable of helping one another; through it all the children screaming, without any possibility of help; at night, all but two lights put out, for fear of fire, except when the doctor pronounced it absolutely necessary for the preservation of the sick; and this going on for more than three days and nights continually; when the people were a little recovered from their prostration, a tremendous lurch coming, and dash going down their dinners, their teapots, and everything they had before them. Imagine the men, through all this, having to come up and make their way to the cook's stove on deck to get their messes, and not having yet got what is called their "sea legs," continually tumbling, and away going their soup, their pudding, or their tea. This has been going on; while a number of rough fellows, who stood it out, sat and raised a horse-laugh at every accident.

Such, indeed, has been the suffering, that half the people, I believe, would have been thankful to have been set on shore if possible, and never more would have dreamed of "the diggings." One woman begged the captain, if he could not get the ship to go the course he wanted, *to east anchor* and *remain quiet*. Another, a widow with three children, sent up her boy to say, that she would be much obliged to the captain to put her and her family on shore in Portugal. Such things are amusing to us, but not so to them. But one fine day, and see the difference!

Up come whole crowds. Women seat themselves in throngs under the little piazza in front of the cuddy windows—some sewing, some nursing, some gossipping. Whole tribes of children, seated on the deck, amuse themselves as children only can—with nothing. There are one hundred children on board. The men—some stand to watch all that goes on, laughing at every accident; some are talking together; some sitting—a good many of them—silently reading. There is a small library of well-selected books on board, which is a great blessing. A few newspapers, too, are circulating about, and the older they get the more their value seems to increase. Other groups of people are sitting on the ground in wide-awakes, playing at cards.

19th.—Still fine. Amongst the most celebrated characters on board is a certain Master Jones. In the ship library are "Illustrious British Children;" I have proposed to put him in the next edition. Master Jones is a boy of perhaps five years of age, who is here, there, and everywhere; a boy in petticoats, with the appearance and audacity of a man. Master Jones is one moment climbing over the bulwarks, and about to plunge into the sea, another time he is diving headlong down the hatchway; then again he is mounted on a cockling cask, and the next moment rolling down the ladder leading to the poop. In short, Master Jones is in every place where he should not be—climbing the rigging, running in the way of staggering people, capsized, trodden upon, rolled over; among the dogs, about to pitch headlong among the pigs in the longboat, to which he has climbed; so that there is a perpetual cry, "Take care of that child!" or, if a loud screaming is heard, every one exclaims, "There is Master Jones again!" Master Jones, however, got a terrible fright in the storm, and is now only just recovering his activity and impudence. He has just told somebody who plucked him out of danger, "I say, sir; I shall send my father to you!"

Tuesday, 22nd.—We are now going on from day to day with a light breeze. The weather is getting very warm, the sea of a most beautiful bright blue, and so transparent that you can see far down by the rudder. A few of Mother Carey's chickens follow us, but bring no storm. You may imagine us, as we spend the day thus:—Up before breakfast, and walk in the fresh air on deck; at half-past eight, breakfast—tea, coffee but not often; broiled bacon, ham, steaks while there were any—then a walk on deck again, after which I go into the cuddy, where I can write extremely well. Our two ladies, for we have but two, seat themselves under the mizen-mast, and a group of gentlemen collect round them as they work or read. Sometimes the gentlemen amuse themselves with rifle-shooting at a bottle run out at the end of a line, or at a tub sent adrift. At half-past twelve, luncheon, simply bread and cheese with a glass of wine, or wine and water. In the afternoon we all sit about in the shade of the awning on the poop, and read or talk. At four we dine—soup, roast and boiled meat, curry and rice puddings, preserved-roll, rice, and suet or plum-pudding, gooseberry, greengage, or rhubarb tarts; dessert—nuts, almonds, and raisins. At eight o'clock, tea. As the evening closes in, the life of the lower-deck begins. The people collect and sing solo, or in chorus. On the poop, unfortunately, no one has an instrument, excepting Mr. ——, who has several, but it is not easy to persuade him to use any of them. Below, however, they have a number of good singers, who sing right heartily, and are joined in chorus by a large number. The people on the poop sit and listen.

It is a curious thing to me, and like a dream, to sit and see the solitary ship floating along with all her canvass spread, over the really "dark blue sea," that ripples gently on her sides, and sends a stream as of blue ether mixed with glittering stars behind her, while over head, the clear heavens are thickly strewn with the brilliant constellations, and the moon, now in her first quarter, hangs low, preparing to dip into the ocean. Thus we go floating on day by day, night by night, rarely seeing a single thing through the day besides the circle of waters. And yet, cut off as we seem to be from the world, the ship is like a great British heart, bearing all its national feelings, passions, and propensities along with it. Amid this ocean waste, advancing to the

antipodes, yet, night by night, the sound of its English songs is borne over the waves. "Rule Britannia," "God save the Queen," "I am an Englishman," and a host of songs of love and patriotism are pealed forth as fervently as the songs of her kings were of old in their wild and daring expeditions. Such is the course of one day. We generally remain on deck till twelve, to enjoy the delightful freshness of the evening, and then to bed.

But you would have but a very imperfect idea of the life of the ship if you did not see how the people below spend their time. As for the sailors, now that the weather is fine, they employ themselves chiefly in mending the sails. They have brought out a whole mountain of duplicate sails, which they spread out one by one on the poop, and sit sewing in any deficient part. The people at large begin their day by coming up with plates of ham or bacon to the cook to be broiled. The stove standing under a shed about midships is for the intermediate passengers, and the cook is kept well employed. He tells us that he begins to get his water hot at four o'clock in the morning. At breakfast-time he is surrounded by a dense crowd with their tins, and their tin tea or coffee-pots to be filled. This crowd dispersed, and you see the various families seated at their breakfast. All below at their tables, and many of them in their cabins with all sorts of contrivances for tables; others are seated on deck, making a table of a cask-head or beam. I am glad to see that so many have brought so much good provisions in addition to the ship allowance; hams, flitches of bacon, sausages, preserves, and pickles. Breakfast over; you see the third and fourth mates weighing out the allowance to each family. They have enough to do. Then issue forth, the men with meat in dishes for boiling or roasting; with potatoes, and eggs in nets, to be boiled; and with pies, some of them very ornamented, to be cooked; rice puddings, preserve puddings, and the like. At dinner-time the cook is again lost in a crowd of eager applicants, and all families are once more seated at their meals. In the afternoon people read, lounge about, play cards or dominoes, and gossip; women sit at their sewing, children play, while some of a reflective or more studious character, may be seen sitting on the ship's side among the ropes, reading, smoking, and the like. Evening, and singing as before. We have a young Welshman on board who sits in all sorts of solitary places, incessantly engaged in writing in a small memorandum book. He is said to be celebrating his voyage in Welsh verse.

To-day we are in latitude 34° 55′, longitude 13° 31½′.

Friday, 25th.—Yesterday we were in sight of Madeira, but as our captain is under orders to put in nowhere, excepting in case of absolute necessity, we have only been tantalised with the sight of it at about twenty miles distance. We saw the island with its lofty ridge, Uni Desertas, two uninhabited rocks on this side of it, like a great island of naked stone. It was, however, fine as a whole, thus rising out of this summer sea, so far from any land, but the land of savages—Africa. It was in full view all day, but not a single sail of ship or even fishing-boat was visible. It looked like a desert island. Three or four swallows, however, came off and amused themselves with skimming about among the sails, and this morning I saw a swift soaring about.

We have had splendid sunsets for the last several nights. Last evening the sun went down directly over the island, and as soon as his blinding disk had gone down behind it, the eye was astonished and delighted at the glorious flood of coloured light which filled all the sky there, forming a sort of celestial background to the rocky mountains that stood in such silent majesty in the midst of the ocean. The intense orange colour which burned over the west, and diffused itself in progressing dilution along the lower and into the transparent opal of the upper sky, was such as only tropical latitudes can show; and all along the horizon, at some little elevation, stretches of cloud of the richest colour lay on the same transparent opal, as if painted upon it, as indeed they were, by the pencil of the Divinity. They were not like clouds which could move, but only patches of colour which were to serve the occasion, and fade out as they did, amid the admiration of every body who stood watching the lovely and sublime spectacle. As this beauty faded away, the moon, already in the sky, introduced another, and the passengers long through the night walked the deck in the enjoyment. A., as well as several others, made a slight outline sketch of the island, but it can give no idea of what could only be described by the most exquisite colour in the hands of a master.

This morning the island cannot be seen, but the mass of cloud which rests upon it, like a mountain pile of white marble, tells its place. There is not a cloud to be seen elsewhere, yet these white marble-like clouds remain motionless in that quarter, showing what a force of condensation of vapour exists, especially in a mountain-land.

Sunday, 27th.—We are now in the trade-winds, and going before a fine breeze at about nine knots an hour. For days we have been sailing on a summer sea, in a sort of holiday style; fine skies, bright blue sea, pleasant air, and the ship almost as steady as land itself. But yesterday the breeze became fresh and right abaft, so that nothing could be more animating. We knew that we were not only sailing, but going at a noble rate. As this wind will probably continue for some time, we shall soon make up for past hindrances. Yesterday we came abreast the Canary Islands. We saw, however, only Palma, the most westerly, at about twelve miles distance, and though it was very much enveloped in clouds, yet it was a magnificent sight, its bare mountainous ridges rising about 7,000 feet above the sea.

Of the Peak of Teneriffe we could not get a glimpse, as we were distant about 100 miles, and we do not now expect to see land again till far beyond the Cape. The captain means to steer wide of the Cape de Verds, and not go nearer the Cape than 500 miles. Yesterday we saw a small species of whale, called the black fish, sporting about, one or two of them; but hitherto, this has been a very solitary highway, scarcely a living thing seen. Anon we shall come among bonetas, dolphins, &c.

June 28th. We are now in latitude 24° 44′, longitude 21° 17′. All fair and summer sailing. We are now pretty sensible of the approach to the line. The thermometer is 110° in the sun; but we have such a fine breeze, that the heat is not oppressive, though the sun at noon is as near as possible perpendicular, a strange sight to see it just above our heads. The flying-fish are now becoming numerous. They rise, not as I supposed, one by one, but in flocks, and look for all the world like a flock of ivory larks. It was to me curious to catch the first view of them when not expecting them, for I was the first who saw them. I thought in the first instance, that it was a quantity of writing-paper that somebody had torn up and thrown out of one of the scuttles, but before they fell again I perceived what they were. As the ship comes amongst them they fly on both sides like a covey of larks, and continue their flight a few feet above the waves for a hundred yards, or perhaps more. It is a very pretty sight, and we shall now get amongst them till they are as common as butterflies in a garden. We have seen one or two nautiluses, or, as the captain and sailors call them, "Portuguese men-of-war." But they must be the nautilus, for they use their shell as a boat, and a little sail, with which they skim over the waves at a great rate, and continue going as long as you can see them.

We have had a few breezes on board, as I expected. The intermediates have not found their situation very comfortable during the hot weather any more than during the storm. The immense advantage of the poop, where we enjoy the fresh breeze and the prospect, while both are kept from all the intermediates who cannot climb the ship's side; and of the cuddy, where they see the poop-passengers sitting in ample space, eating all sorts of good things, and drinking their wine, or their water made pleasant with lime-juice and sugar, are more, to my thinking, than common human nature can be expected to bear. The consequence is, that they feel considerable ill-will towards them. Numbers of them come upon the poop, and the captain has to order them away, for if it were permitted to one it must be permitted to all. We are thus placed in the position of an aristocracy for the voyage, and look down from our elevation on the masses below, in what must appear to them a very invidious elevation. Accordingly, the other night, a set of them, headed by a man, called here the "Gravesend skipper," came to a regular quarrel with the captain, abused him, and set him at defiance. He threatened to put them in irons, and the better part of the intermediates, who are greatly tormented by this rude set, declared they would stand by him, so that all is now quiet again.

THE HOUSE.



INTERIOR OF THE HOUSE OF COMMONS. ENGRAVED BY WILLIAMS. FROM A DRAWING BY GILBERT.

We "went down to the House" one evening last session. We had a double motive for taking such a step. In the first place, we had nothing else to do, that we liked or cared to do; in the second, we were anxious to see the noble lord, the member for Riverdale, crush the honourable member for Slitherdale, as on that occasion everybody confidently expected he would, always excepting the honourable member for Slitherdale himself, who, doubtless, did *not* look forward to such an event.

Be it known unto all whom it may concern, however, that neither at the time when we formed this resolution, nor at any other time, had we the honour of a seat in the House. The reason is obvious; we have never solicited the suffrages of any constituency. Consequently, our intention was to station ourselves in the lobby, to request from some passing legislator the means of procuring an entrance to that curious place called the "Strangers' Gallery," which, though capable of containing sixty

or seventy unfortunate individuals, very tightly packed, and though a very conspicuous feature in the interior of the apartment, is hardly seen by any of the members. Doubtless, in the year of grace 3000, some Australian association for the advancement of science will listen in wrapt interest to a paper, from one of its antiquarian members, upon the curious effects produced upon the human eye by the election of the owner, by the burgesses and freeholders, to serve in the ancient British parliament.

Making our way then to Westminster, we entered that noble hall, noble enough to form the vestibule to a temple in which the Areopagus might sit in judgment, or a Roman senate await the approach of the Gauls. We passed through lofty carved doors, swinging heavily but freely on massive brass hinges, through long marble-paved passages, with "high embowed roofs;" by

"Storied windows richly dight;"

not, however, "casting a dim religious light," inasmuch as from without there remained no light to be cast, and as much as was required within was cast by gas-lamps in a manner neither dim nor religious, but on the contrary rather theatrical. Along these "cloisters pale" we met numerous individuals of a class, well we ween, unknown to the long-gone and much-lamented personages to whom the architecture of this mighty building owed its origin. No; in the age of faith, in the age of devout peasants, of praying nuns and fat priests, and bead-telling lords, there were no policemen. Constables in blue uniform are the offspring of scepticism, of heresy, of decay, of the decline of the principle of authority, in short. In the year 1300 or 1400, when Christianity was still in its purity, and wolves had a curious custom of lying down with lambs, their teeth all the while remaining in a state of aridity, when a man wished to punch his neighbour's head he punched it, and nothing more was said about it; but, goodness gracious! (whatever that may mean), if such a thing is done now, neither the punchor nor the punchee hears the last of it for weeks, and it may be for months or years. Let us then banish policemen from cloistered halls, and such like places; let us restore the "age of faith," "the principle of authority," the "order of peasants," and the cheap and speedy justice of the quarter-staff. Hooray!

Having then passed through various corridors, through a green baize curtain, across a great area, and turned in various directions, too numerous to mention, we found ourselves at last at a certain door, at which two policemen lounged lazily, and looked at us carelessly across their leathern stocks, as if they could read in our face, at a glance, the fact that we were not a member, and therefore unworthy of keen scrutiny. We took up our post in silent patience amongst half-a-dozen other individuals, on the same errand with ourselves, and waited the arrival of some of the people's representatives, who might be familiar with our by no means fascinating personal appearance, and upon whom that familiarity would give us a claim for an order. As we waited, many an honourable gentleman passed in and out in lofty reverie, not deigning to bestow even a glance upon the "strangers;" and the door, as it flew open for each, suffered a sound of wailing or whining to reach our ears, as if from a distance, betokening that somebody was "on his legs;" but we feel bound to add that, from the buzzing noise which accompanied it, and above which it rose, we were irresistibly led to the conclusion, that, for all the purposes of patriotism and philanthropy, he might as well have been resting upon a more ignoble portion of his animal economy. We saw, and not without feelings of admiration and awe, the honourable member for Cloghfin pass in, buried in profound thought, knowing, as we did, that he was about on that night to call the attention of the House to the conduct of Gustavus Vasa during the Thirty Years' War, passing in review at the same time the foreign policy of Great Britain from the earlier part of the eighteenth century down to the Battle of Leipsic and the Peace of Paris. And we saw also the honourable member for Fontenoy, yea, we gazed upon the features of the man who, while he had the honour to occupy a seat in that House, was always agitating for the restoration of the Heptarchy and the division of Ireland among the clans, believing as he did that the natural rulers of a people were that people's priests; he had implicit faith in the old saying, "Once a priest always a priest," and he knew that every priest had in him the makings of a "sanctified prelate;" and let others do as they might, he for his part was free to confess that he was born a priest's hack, and he hoped to die a priest's hack, and all that sort of thing, by which the House was greatly affected, and evidently considered the honourable gentleman a very good hack of his kind. We grieve to add, however, that the honourable gentleman has retired against his will into private life, and that he is no longer a member of this present parliament assembled at Westminster. And we saw also the member for Hardhandham, and his colleague the aged member for Blearglowrie, and we knew them to be true veterans of the old guard, that they were fighting together, shoulder to shoulder, for a good cause and with stout hearts; and we felt assured that as long as the people found men so faithful, so true, and courageous to be their advocates, they need never despair of success; for freedom's battle, if well begun and well carried on, tho' baffled oft is ever won. And we prayed in our hearts that neither these men nor any of their colleagues might ever look for their reward from the tongues of the fickle multitude, but from the still small voice of their own consciences. We confess that after looking upon them, our confidence always strong, in the final triumph of right and justice, became suddenly stronger.

A noble lord, with a white waistcoat, also passed in, who has a world-wide fame for his zeal in antiquarian research, who, above all things, is anxious to restore good old customs; who, with a detestation of modern institutions, as well as of modern principles, which must for ever reflect the highest honour on his name, is anxious to abolish merchants, to extinguish stockbrokers, to cause Professor Faraday, to "shut up," to turn Oxford and Cambridge Universities into two big inns, bearing respectively the signs of "The Marquis of Granby," and "The Blue Boar and White Guinea Pig," and the Inns of Court into an Asylum for Decayed Gentlewomen; to put down factories, and people the land with barons bold, riding huge horses, and talking very fiercely to swineherds with collars round their necks, stating their genealogy and whose property they may happen to be. We are of opinion, however, that notwithstanding the noble lord's great perseverance, he is not likely to succeed.

But who is this who looms in the distance, with ebon locks, with brilliant eye, with a Hebrew countenance, and a very stylish waistcoat? Is not this the Right Honourable Pavement Mosaic? and has he not the keeping of Her Most Gracious Majesty's monies and accounts? Nay, more, when the House alludes to "Her Majesty's Government," does it not mean him? Is he not in fact the "leader" of the House, whenever the House feels disposed to follow him? Assuredly. We know all about him. We have kept our eye on him. We have studied his character. We know, for instance, that when he began life he thought it was a man's duty to maintain in august assemblies and in high places the great truths which in study and in solitude he had embraced; not to suffer his generous impulses to yield with a vulgar catastrophe to the tawdry temptations of a low ambition; not to suffer his skilled intelligence to subside into being the adroit tool of a corrupt party; to remain brave, single, and true; to refuse to bow before shadows or to worship phrases. We know also that some people have said that the harvest of his manhood has not answered the promise of his early years; that he has sometimes worshipped phrases, and has even sometimes made speeches, which nobody could understand; but this is like their impudence, the low "snobs." *We* are aware that at this very moment he contemplates pleasing everybody, that he means to lighten everybody's burdens, by making everybody carry everybody else's share; *we* are aware that he is about to diffuse happiness throughout the land, and revive the custom of entertaining angels unawares; that he intends to make pigs run through the streets with a knife in their tusks, crying, "Who'll kill me! who'll kill me!" and make swallows build their nests in the beards of aged men, and roof all the houses with pancakes. "But this is impossible," you will say. Why, that is *our* reason for believing it.

The Right Honourable Pavement Mosaic had no sooner passed from our view, than an honourable member, one of Her Majesty's Opposition, with whom we were slightly acquainted, hove in sight. We begged of him to qualify us for admission to the Strangers'

Gallery, with which request he obligingly complied, and in a few minutes we found ourselves in the presence of the House. Our first impressions after taking our seat were decidedly misty. There was a dull haze over everything, a heavy glare from the lamps, like the sun seen through a November fog. Down below, as we saw the collective wisdom of a nation, embodied in the persons of about four hundred, or it may be five hundred, gentlemen, a Speaker (so called from the fact that he listens to everything, and says nothing, as *lucus à non lucendo*) and two or three clerks. The honourable member for Slitherdale was on his legs; and had moved that "The Bill for the Better Prevention of Rabbits' Breeding more than once a Year—and then, in any Other Way than the Manner and Form hereinafter Prescribed, be now read a Second Time." Now it seemed to us, we may be right, and we may be wrong, that nobody was listening to the honourable gentleman, except a few honourable members near him, all of whom had rabbit-warrens, and a few more who had farms in the vicinity of rabbit-warrens. The latter, of course, wished the rabbits to be put down by restrictive measures; the former wished to have them kept up by the absence of all restriction. Whenever the honourable member made a good point, which we feel bound to say was not often, so that his speech did not by any means bristle, he was greeted with loud cries of "Hyaa! hya-a!" from the anti-rabbitites; to which the rabbitites replied by "Hya-a! hya-a!" uttered in a counter and derisive sense. Whenever this took place, we knew that the busy men in the little gallery over against us, were writing down, "Cheers and counter cheers." But, with the exception of the parties we have mentioned, all were lounging lazily on their seats, chatting with their friends, laughing cheerily, and wondering when the honourable member for Slitherdale would have done. At last their wonder ceased. That venerable man resumed his seat, wiped his forehead and his lips with his poeket-handkerchief, tied up his papers with a piece of red tape, and received the congratulations of his friends with a sleek oily appearance, betokening the internal satisfaction of a man "justi et tenacis propositi."

But this pleasing frame of mind was not destined to last long. The noble lord, the member for Riverdale had arisen, had placed his hat on the table, had arranged his papers, had bowed to the Speaker, and in fact, already said, "Sir!" Fixing his eyes in an alarming manner upon the honourable gentleman who had just sat down, he commenced by denying the truth of the honourable member's premises, or, admitting the truth of his premises, he disputed the correctness of his conclusions. Whereat, the honourable member for Slitherdale looked greatly bewildered, evidently supposing that his premises were his little villa at Richmond and its appurtenances; and his conclusions, his nether integuments, otherwise his breeches, between which two things themselves, or between them and the subject before the House, he could see no manner of connection, and supposing, therefore, that the noble lord was wandering, and not only that, but was becoming personal, he bawled "question! question!" very lustily, whereupon the House laughed as only the House can laugh. The noble lord then went on to say, that the honourable member had neither said what he meant, nor meant what he said, and concluded by recommending him to take the pledge. The insinuation contained in this last remark was more than the honourable member could bear; and we perceived him jump to his feet, and gesticulate violently, amidst cheers, laughter, and calls of "order!" Silence being at last restored, there was a retractation on both sides, and all things went on as before. But everybody was, nevertheless, of opinion, that the member for Slitherdale had been treated in the way that was expected.

Upon one side of the Speaker's chair, we saw the Whigs, and upon the other the Tories; the one being in, and the other out—the one placid and self-boastful, the other hungry and watchful. We were aware that both these great parties were equally anxious for our welfare, and that of all classes and conditions of British people, "from the queen on her throne, to the beggar on the dunghill," to use the words of a pious and learned friend of ours, the curate of Lemnos; though we are free to confess, that in the course of a long experience in various parts of the world, we never yet knew a pauper to take up his abode upon a manure heap. But singular as it may seem, neither of these two great parties acknowledged that the other harboured any other designs than those of the most villainous description, and each was in the constant habit of averring that the other, if left to itself, and not closely watched, would, in a very short space of time, overturn the throne, break the sceptre, smash the crown, and uproot the constitution. Each party is equally confident, that a short tenure of power by its opponents is sufficient to cause the sun of England to set for ever; and night after night, during the long and weary session, these two, sitting face to face, hurl denunciations at each other in the name of the English people. We now grew tired of the performance, and falling into a reverie, we began to reflect on the nature, and duties, and mission of the English House of Commons. We remembered all the faults in the materials of which it is made up. We knew that great numbers of men found entrance there, who, but for the vulgar accidents of birth and wealth, would have been thrown aside like so much lumber, to clear the way for the onward and victorious march of the brave, the gifted, and noble-minded, and in the great race of human progress would never once have been heard of; men who were no more qualified to legislate than they were to earn their bread, or write an epic poem; men who saw nothing base in aught but work, and knew no guide in life but the dictates of morbid selfishness, or the whisperings of a lying vanity. We remembered, that in the elections of members of the Commons' House of Parliament, any more than in too many of the institutions of modern society, right was not always might, nor was truth or merit always victorious. We remembered that the House was in some sense an impostor, for it palmed itself off on the world as the representative of the English people, and yet did not represent them, but represented the most stupid and short-sighted of a comparatively small class. We knew that though the Past was a dead corpse, heavy and unwholesome to linger near, and the Future a quickening spirit, the messenger of glad tidings, her feet beautiful on the mountain-tops, already glowing in the rays of the morning sun of regenerated humanity,—yet the English parliament clings obstinately to the lifeless body, refuses to look up, be comforted, and go forward. Never did any assembly in ancient or modern times possess so many ennobling memories. Never was there a scene so full of inspiration as that room full of laughing, gossiping, and apparently careless men. The greatest orators, statesmen, and soldiers that the world has ever seen, have here fretted out their fevered part, and stamped the impress of their minds upon the age that bore them. Thoughts worthy of angel intellects have been uttered here, in words worthy to clothe them. The great battles of English freedom and civilisation have here been fought by a slow and painful struggle, which has worn out many a fine intellect and broken many a heart highly and delicately strung. Here the noblest of our race have stood up for the good old cause of freedom, men who afterwards on field and scaffold sealed their testimony with their blood. We remembered that here had been displays of eloquence which rivalled and often surpassed the glories of the ancient world. Here was the slave's freedom purchased, here was the poor man's bread cheapened, here spoke and strove Sydney, and Hampden, and Russell, and Burke, and Sheridan, and Wilberforce, and Romilly. What a host of splendid names flashed in golden letters before our mind's eye!

And we remembered, too, that we were then looking upon the last refuge in Europe of constitutional goverument, the last place where a popular assembly dared utter its thoughts without fear or misgiving. What a grand and dignified position, thought we, for any body of men, did they but know how to use it aright. Sole protector of the oppressed on this side of the Atlantic, should it not support the faint-hearted, encourage and assist the strong, rouse up the vanquished to renewed effort, and preach peace and liberty to a down-trodden world? Mighty British heart as it is, whose beating is felt throughout the world, ought not every pulsation carry hope and consolation to those who in all climes love man and labour for him?

As we left the gallery, descended into the street, and stowed ourselves away in a Hansom cab, we said unto ourselves, though it may not do all this now, the day is not far distant when it will; for, with all its faults, there is in it a leaven of good, which ere long will assuredly leaven the whole mass.

ANCIENT MILLS.

INVENTION is man's attribute. The bird still builds its nest as it did in the days of King Solomon; the bee is no greater and no less a mathematician than it was in the days of Euclid; with the lower animals instinct teaches them their wants, and affords them the requisite knowledge for supplying those wants; and while this world of ours performs its aerial journey—while kingdoms rise and flourish and decay, until wild flocks pasture where towered palaces arose, and busy cities spring up where the song of the bittern alone disturbed the silence—the lower animals never progress, their sagacity is stereotyped, and with them there is no advancement. It is the attribute of invention which distinguishes man from the brutes. We see this everywhere, and always.



FIG. 1. A HAND-MILL. FROM A GERMAN ENGRAVING OF THE SEVENTEENTH CENTURY.

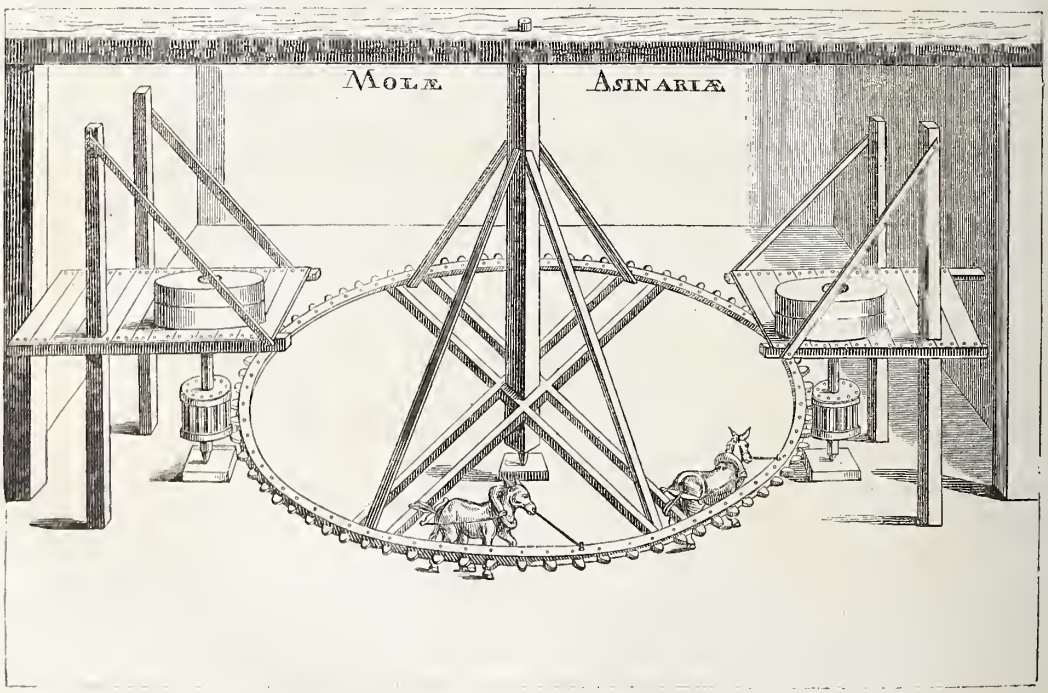


FIG. 2. INTERIOR OF A DOUBLE MILL, WORKED BY TWO MULES. AFTER FAUST VERANZIO.

The savage grinds his corn between two stones by simply rubbing them together. The invention of the hand-mill was a considerable improvement, as it gave certainty and equality to the pressure. The use of such mills as this is ascribed to very high antiquity. In the book of Exodus we read "all the first-born in Egypt shall die, from the first-born of Pharaoh that sitteth upon the throne, even unto the first-born of the maid-servant that is behind the mill." The law of Moses, with admirable wisdom and exemplary kindness, decreed that "No man shall take the nether or the upper millstone to pledge; for he taketh a man's life to pledge." The mill common among the Hebrews differed little from that which is in use to this day throughout Western Asia and Northern Africa. It consisted of two circular stones, two feet in diameter, and half a foot thick. The lower was called the nether millstone, and the upper the rider. The former was usually fixed to the floor, and had a slight elevation in the centre, that is to say, was slightly convex in the upper surface. The upper stone had a concavity in its under surface fitting to or receiving the convexity of the lower stone. There was a hole at the top, through which the corn was introduced by handfulls at a time. The upper stone had an upright stick fixed in it as a handle, by which it was made to turn upon the lower stone, and by this action the corn was ground, and came out at the edges. These ancient mills were commonly turned by two persons,

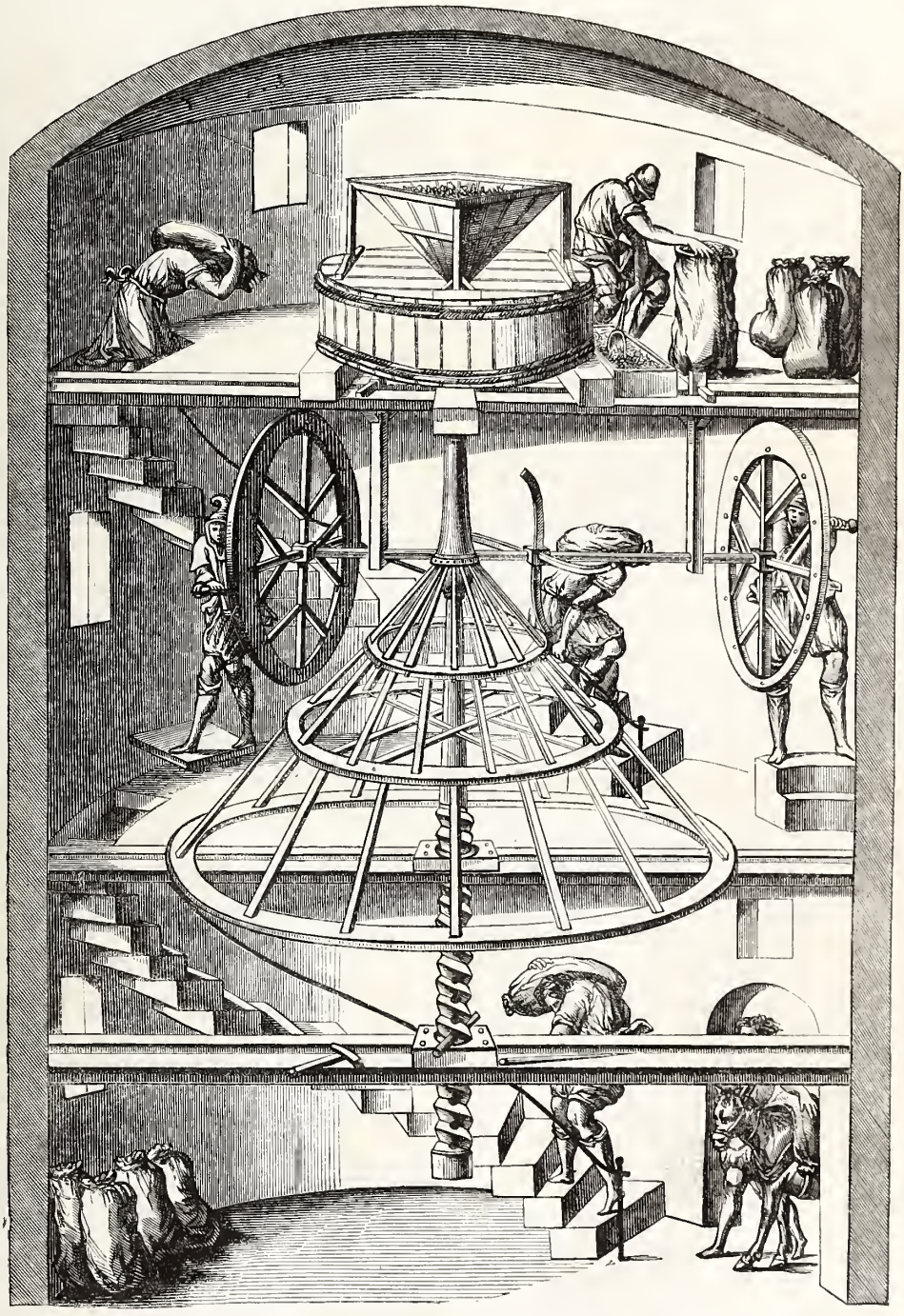


FIG. 3. INTERIOR OF A MILL OF THE SIXTEENTH CENTURY, WITH TWO STORIES.

usually women, and these, the work being laborious, the lowest maid-servants in the house. They sat opposite each other. One took hold of the mill-handle, and impelled it half way round; the other then seized it and completed the revolution. This species of grinding is still practised in the east. There the trade of the miller is altogether unknown, the hand-mill being in general use among the corn-consuming nations. These old-fashioned hand-mills did not differ in any considerable degree from the Highland

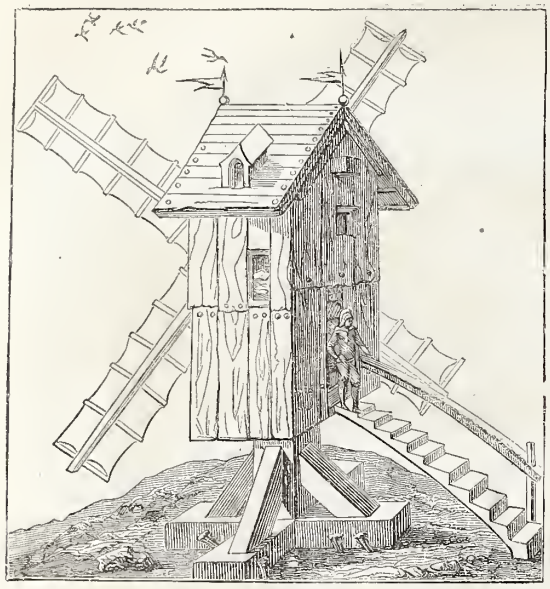


FIG. 4. WIND-MILL OF THE SIXTEENTH CENTURY.

and Irish *quern;* and are the obvious resource in those remote quarters where a population is too thin or too scattered to afford employment for a miller. Hand-mills are mentioned in the Odyssey, and were common in ancient Rome. When wind-mills were first used is involved in uncertainty; they were not known to the Romans in the days of Vitruvius. They most probably were originated in the east, and were introduced to France and England about the middle of the eleventh century. The most ancient mention we can discover of a windmill is in the "*Dictionnaire des Origines,*" which contains the details of such a mechanical contrivance, erected in the year 1105. To trace the progressive stages of invention in this branch of mechanics is extremely difficult, but we have collected some curious particulars respecting ancient mills, chiefly interesting for still more curious engravings.

Fig. 1 represents the process of grinding corn by an improved principle of the hand-mill. It is taken from a German allegorical print of the seventeenth century.

Fig. 2 is the interior of a mill worked by animals, and containing a double pair of stones. To these mills the Romans gave the name of *molæ jumentariæ, molæ asinariæ,* or *asininæ.*

Fig. 3 exhibits the interior of a mill containing various floors or stages, and arranged in a very remarkable manner, and which would safely bear comparison with more modern erections for the same purpose.

Fig. 4 represents a wind-mill of the sixteenth century. The engraving is taken from the most ancient treatise on geometry, which was printed in France in 1511 or 1512. The mill appears very similar, as to the method of operation, to those which are used in our own day.

Fig. 5 is a machine invented by Faust Veranzio for winnowing corn. It was used, at an early period, both in Germany and Italy.

The whole of these engravings are taken from very old specimens of the art, and are chiefly interesting on that account.

Water-mills are either undershot, that is, carried round by a current in which the float dips, or overshot when the water falls from above upon the float. Three feet per second is the common velocity of overshot water-mills, and the wheels are from twenty to forty feet in diameter.

The practice of grinding by wind-mills is, as we have seen, an ancient usage. The force of wind at ten miles an hour is half a pound per square foot; at fourteen miles is a pound; at twenty miles, two pounds; at twenty-five miles, three pounds; at thirty-five miles, six pounds; at forty-five miles, ten pounds; at sixty miles, eighteen pounds; and at one hundred miles, nearly fifty pounds. To give the fullest effect to this force, the sails are inclined to the axis from 72° to 75°. The tops of the sails often move thirty miles an hour. From tip to tip is about seventy feet, and the breadth from five to six feet.

Steam power, however, supersedes both that of air and water. The wheels of steam-engines move from five to twelve feet per second, and make from twenty to forty revolutions per minute.

Among the immense number of objects collected together in the Great Exhibition, the varied improvements for grinding and cleaning flour were not overlooked. Various specimens of the stones, steel, and iron plates by which the grain and other material were then exhibited, detached from the machinery by which they must be maintained in motion when used. Among the rest a mill of a peculiar and compact arrangement, consisting of two pair of conical stones, one above the other, but attached to the same spindle; between them a conical wire sieve, with brushes fixed to the spindle, by which the fine flour detached by the upper stones is separated from the grain before the coarser parts fall to the lower stones.

The millstones employed in grinding corn require to be made of a peculiar kind of stone. Most of the stones employed in England for this purpose are procured from the quarries of Nieder-Mendig in Western Germany. At about ten or twelve miles from Coblentz is a small town called Andernach, the chief trade of which is in millstones. At Nieder-Mendig there are several quarries; each quarry is shaped like a cone, and averages about fifty feet in depth. Down the sides of these conical quarries the quarrymen descend by a spiral path. The miners have to cut a way through a superincumbent layer of soft porous stone till they come to a layer of hard, blackish, heavy stone, regularly porous,

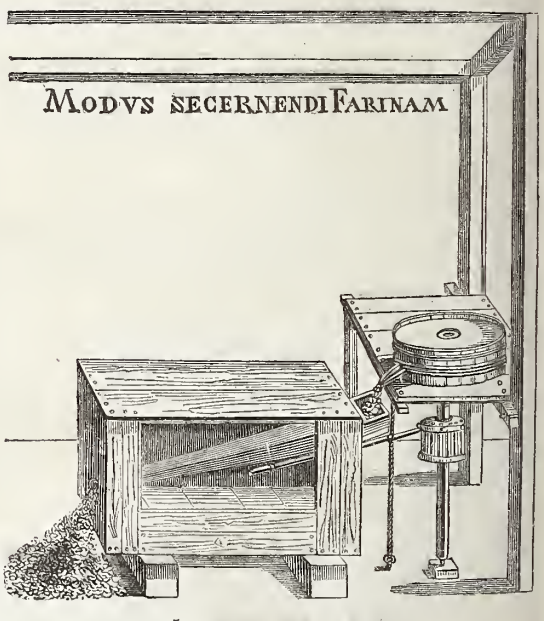


FIG. 5. WINNOWING MACHINE.

and yielding sparks when struck with iron. This is the millstone, and requires good and well-prepared tools to work it; it is supposed to be compact lava from some extinct volcano, and as there are fissures, or gaps, at intervals, these facilitate the separation of the stone into blocks suitable for millstones. All round the bottom of the conical cavities the stone has been excavated in galleries or horizontal passages. The stone is brought to shape by the hammer and chisel.*

* Knight's Cyclopædia of the Industry of all Nations.

SECOND-HAND PEOPLE.

There is not a more extensive family in the world, nor a larger class in civilised society than second-hand people. How many scions of the noble house do we number amongst our acquaintance; how perpetually are they turning up; they hunt us from house to house, from city to city, from town to town, all the world over. Second-hand people are those who never think for themselves. They are not manufacturers, but retail dealers. They listen to what other people say, and repeat it as their own. They read not to set their mental machinery in motion, but to store their minds with ready-made thoughts. They are the men who go the whole hog, as we say, and swallow him every bristle. They have a high opinion of antiquity, and are always looking out for precedents, and in whatever situation of life they may occupy, whether on the apex of the social pyramid, or down at its base, it is all the same, they are only the re-issuers of outworn notions, and the exponents of old sentiments and old ideas.

We look into the morning papers, and find that the honourable member who misrepresents our borough in parliament has been playing his second-hand game in the house. We go out into society, and mingle with all sorts of people, and nine out of every ten are second-hand—not uttering their own thoughts, but those of their party; not praising or dispraising because a thing is essentially right or radically wrong, but because other people—their modellers, patterns—praise or censure. We mingle with the festive throng, and they greet us with their light laughter and silly nothings; we seek seclusion, and they write to us in books; we plunge into the common business of the day, and they clink the scales and talk to us over the counter; we enter the sanctuary, and they preach from the pulpit and shake hands with us over the back of the pew. Anywhere and everywhere we find them, and in all sorts of shapes—sometimes as a worthy country magistrate of the good old school; sometimes, as a pretty little wench just come from school; sometimes, as a learned and sagacious doctor, of the Panglos species, and sometimes, as a young sprig of nobility, who will wear a pin almost as big and as ugly as a beadle's staff, because Jack Waters of Brazenose does it.

And with wonderful exactness they preserve the unities. They are second-hand politicians, second-hand thinkers, second-hand men of business, second-hand philosophers, wits, and men of fashion, walking the earth, with their silly, weary-go-round, clothed in the intellectual garments of other men, with no greater attempt at originality or newness, than a frippery warehouse in Holywell-street.

Second-hand people are the cement of sectarianism in Church and State. They are your true blues. Once having taken up with any idea, cause, or system, as a boy takes up with a coach; namely, by jumping up behind—they follow it recklessly through mire and dust, knowing not, caring not, whither the coach is bound. They are the chorus singers to a great man; singing in turn and filling up the intervals, but never venturing on a solo or a variation in their part. These are they who always acted one way, and marvellous to relate always found it the best. They are machines to be worked; instruments that will give forth any note; men, who abominating every original thought as a Jew does swine's flesh—stand before the world an ocular, tangible, palpable prejudice.

Second-hand people are clothed in a threadbare suit of outworn fallacies. They are afraid to venture anywhere except there be a footprint in the sand; they are content to see with the eyes of other people, and take for granted what certain men may choose to say, as if men always spoke the truth, and never vouched a lie. They do not know what it is to think, they only think they think, frightened into acquiescence by any paragraph that bears the name of a great man; setting you down noisily for an incorrigible idiot if you presume to differ, willing, with Captain Absolute, to knock you down, and, if you grumbled, kick you out of the room. Their intellectual power is but a cutaneous disorder—skin-deep. They have adopted certain principles, certain systems, and they mean to adhere to them. They take their stand on the wisdom of the past, or are guided by an oracle which to them is of Delphic profundity, and nothing, no, nothing, can make them think otherwise.

Now there is this difference between second-hand people and thinking people—the first adopt certain principles, and take them for granted. The second take nothing for granted. A reasoning man listens, examines what is said, is patient in hearing both sides of every question—is not to be awed by gold and paint, and never argues in the spirit of a prize-fighter. He reads, marks, learns, and inwardly digests, and becomes a vigorous, healthy-minded man. He may not be so good a voter as the second-hand man, and though he does not engrave truth on his watch seal, acts and lives by it as the staff and support of his life.

There is a peculiar style of literature adapted to second-hand people, sort of intellectual go-carts—thinking made easy's. The Chinese traveller remarked that the English hired people to think for them, and the saying with regard to this section of the community, is beyond dispute. They are the echoes of others, galleries of painted pictures, shallow, headstrong theorists—afraid to go out of the beaten path, fearing the slightest deviation, tenacious of modes and notions sanctioned by time, dreading the ill-omened flight of philosophy and fancy athwart the good old way, as peasants turn back in dismay at the sight of three magpies.

Second-hand people are in intellectual slavery. They dare not form an opinion of their own. They dare not brave universal consent and consecrated maxims. And having thus adopted the views of others, they are naturally disposed to call distrust and contradiction self-conceit and pertinacity. They are the inculcators of the doctrine of passive obedience and non-resistance, for the slave can easily be converted into the tyrant. But a thinking man has no fear in him. He is not content to be driven back from the undiscovered empire of truth. He is not willing to take for granted that his system is the truth, the whole truth, and nothing but the truth. He does not think it altogether impossible that his nuggets of gold may have with them a considerable quantity of alloy; that his yellow corn is altogether free from rubbish and barn-sweepings, and he tests and examines before he will rest satisfied.

But for a right-down, out-and-out, second-hand man, give me a good old parchment-skinned lawyer. That's the man for my money. Talk of law reform, talk of cheap law, talk of judgment without two arguments each six hours long; bless your heart, do you think you are wiser than Chief Baron Rusty, or Mr. Justice Fusty, who ruled it as it is, and ought not you to know, that arguing from the well known principle laid down in Brown v. Jones, 3rd Muggins, p. 49, § 2., the thing can never be made otherwise than it is, and won't either, and you are dismissed with contempt!

Every great discovery, invention, and improvement is the result of originality. The wisdom of our ancestors had settled the matter with regard to the solar system, making all other planets bow down to this small speck of matter that we call the world. But an original man found out that the wisdom of our ancestors was altogether wrong—and uttering his own great truthful system, the second-hand people hooted at him as a madman, but by and bye adopted that very system which they had formerly despised. And this is a sample of the whole: second-hand people have ever been the stern opponents of all progressive movement. It is your original men, who were not always hunting for a precedent, and who have dared to step over narrow boundary lines, that have intersected our country with broad and narrow gauges, that have covered the sea with steam fleets, that have laid down electric wires, and made closer neighbours of France and England, by a submarine communication—they it is who have let the dead past bury its dead, and have gone onward amid unceasing novelties to the future full of hope and glory.

The world owes nothing to second-hand people, but everything to those who were guided and actuated by the spirit of self-reliance—who would not be eternally doomed to speak after a certain number of persons who chanced, right or wrong, to say something or other before them—who were not content with such an idea of truth as the man had of royalty, who boasted that he had seen a man who saw a man who knew a man who saw the king—who studied, like Descartes, "hard without books," and were not willing to fall asleep beneath an opium sky, which continually rained soporifics.

ROMAN RUINS.

Sometime ago we presented our readers with a sketch of some of the existing remains of Roman greatness—a triumphal arch, and the theatre of Marcellus. We now return to the subject.

In the foreground of our first engraving may be seen an ancient fountain, called *Meta Sudans*, or the Sweating Fountain; near it, upon a height, the ruins of the Temple of Venus; and in the background, the Arch of Titus, and the modern Capitol. The fountain, which was a jet d'eau, and is at present in ruins, was in existence under Nero. According to Cassiodorus, it was rebuilt in the reign of Domitian. Tradition states that the gladiators, on issuing from the Colosseum, which is but a few yards distant, came to wash their bloody hands in its clear basin. In the midst was one of those columns in the form of a cone, such as were used in the circus to regulate the course of the horses, and from the top a jet of water shot up into the air, and fell back in a shower into the basin.



THE SWEATING BOUNDARY.

Some antiquaries have supposed that this cone served also to mark the spot where four of the districts, into which ancient Rome was divided, met, viz., the 2nd, 3rd, 4th, and 10th.

The Temple of Venus and Rome, the ruins of which hide from the spectator the church of Santa Francesca Romana, was built upon a plan sketched by the Emperor Adrian. Venus and Rome, considered as a goddess, were united, in consequence of the divine relationship established through the medium of Æneas. A portico, composed of a double row of granite columns, was raised upon an area of five hundred feet in length, and three hundred in breadth, the remains of which still exist. The columns were about a yard and a half in diameter. This portico was only an approach to the main body of the building, which was 340 feet in length, and 180 in breadth. In the two façades were ten columns of Parian marble, and at the sides twenty, all fluted, and of the Corinthian order of architecture. In the area, between the portico and the peristyle of the temple, properly so-called, were two great marble pillars standing alone, and each supporting a statue. The *cella* was divided into three parts, and was covered with Parian marble. The floor of the portico was paved with the same material. The roof was covered with bronze, which Pope Honorius I. caused to be torn off, in order to place it on the basilica of the Vatican. Seven steps led up to the vestibule of the temple, and five more from the vestibule to the *cella*. The interior of the double *cella* was adorned by porphyry pillars, of which some fragments have been found. The roof, decorated with stuccoed caissons, was gilt

all over, as were also the inside walls of the *cella*, and the pavement was of antique yellow, and serpentine. The only important fragments of the ruins of the temple which still remain, are the foundation of some parts of the walls of the *cella*, and the niche, in which were placed the statues of the two goddesses.

The arch of Titus was erected after the death of that prince, during the reign of Domitian, to commemorate the conquest of Jerusalem. This was composed of a single arcade, forty-five feet in height, and built entirely of Pentelican marble. Four of the eight half-fluted columns of the composite order, which adorn the two façades, have been destroyed; there now remain only two at each side; but those which look towards the forum are not entire. Two admirable bas-reliefs beneath the arch, representing the triumph of Titus, have unfortunately been mutilated. In one the emperor appears in his chariot, led by a female figure, representing Rome. He holds in his hand the general's baton of office, and is crowned by victory. A crowd of soldiers, citizens, senators, and lictors follow, carrying palm-branches in their hands. On another bas-relief are the Jewish prisoners, the table of shewbread, the golden candlestick, the tables of the law, the sacred vessels of which the temple at Jerusalem was plundered. The frieze of the cornice represents the rest of the triumphal pomp. The river of Jordan is personified and borne by two men, and there appear priests leading oxen for the sacrifices, and soldiers of the legion of Minerva, having the Gorgon's head upon their round bucklers. Four splendid victories adorn the archivolt. A fine cramp in the shape of a bracket forms the key of the arch, and in the midst of these ornaments Titus is seen riding to heaven on an eagle. The arch was restored by Pope Pius VII.

The famous vale of Egeria, in which, according to the ancient tradition, Numa Pompilius consulted the nymph, and in secret converse learnt from her the art of governing, extended, according to Semmaeus, from Mount Celio to the Mount of Gold (the Pseudo-Aventino). The sacred fountain, by whose bubbling waters the priest-king sought inspiration, has long ago disappeared.



THE FOUNTAIN OF EGERIA.

At the present day the name of the fountain of Egeria is given to a nymphæa, situated three miles farther on in the valley of Caffarella. The nymphææ were little edifices, sacred to springs and streams. That of the valley of Caffarella appears to have been built about the time of Vespasian. It has nine niches, which were formerly in white marble, with cornices of red marble. The floor was serpentine, and the walls, at least in the lower part, verd antique. The statue, lying at the bottom, is headless, but it is easy to perceive that it personified a river or streamlet.

DIARY OF A VOYAGE TO AUSTRALIA.

BY WILLIAM HOWITT.

PART II.

June 30th.—We still advance on our solitary way at a good rate; fine weather and fair wind. But all so solitary! the same eternal circle of tumbling waters; the same groups within the ship, but not a living thing out of it, excepting an occasional flock of flying fish. It is now a fortnight since we saw a ship, and some days since we saw land. We have now left the sun on the northern side of the heavens, an odd sight! and are looking out each night for the Southern Cross. We have brilliant moonlight nights, and as we are to-day in 21° north latitude, and 24° 6′ longitude, we are within 3° of the Cape de Verds, and to-morrow shall look out for them. Though we are in the tropic of Cancer, the day is only pleasantly warm and rather cloudy.

Last night some of the mischievous intermediates put a pig down between decks, which ran about of course, and made the most horrible uproar, awaking all the intermediate passengers, and assisted in its din by the rogues themselves rattling and clanging together all the tins they could lay hold on.

July 1st.—Another pig let down to-night!

Thousands of flying-fish fluttering away from each side of the ship. Two have been caught, having been entangled in the chains; they are about the size of a herring, the colour of mackrel, but not barred like them. Their wings are two-thirds as long as their bodies. It is curious that they should look so white at a distance, when their backs are dark and bluish. We are now getting into the region of watery life. Besides the flying-fish, skip-jacks and bonetas begin to shew themselves in shoals at the prow of the ship, some moving at an amazing rate, and others jumping out of the water. It is quite a picture on the forecastle. Numbers of people are leaning over the bulwarks watching the fish, and numbers of others, more adventurous, are riding on the bowsprit and jib-boom to the very end, high above the water, and twenty or thirty yards in advance of the ship. Others are lying about or sleeping, and others, young men, washing their check shirts with a scrubbing-brush and marine soap on deck. If you look down the hatchway into the forcastle, you see lots of sailors, some asleep in their hammocks, some eating, with their plates on their knees. As you return to the cuddy, you find all sorts of life. Dogs and pigs are strolliug about; here are the cooks at their stoves, boiling and baking; here people seated peeling potatoes, and washing pieces of meat preparatory for dinner; and again, near the cuddy, groups of card-players, with a rug spread under them; groups of readers, groups of women sewing, and children at play. Enter the cuddy: the captain is at his log, and the gentlemen writing letters or journals.

There is a shout! A boneta is speared, and in comes A. with it in his hand. It is a fine fish of half a yard long, with dark purple back and silvery sides, striped with longitudinal stripes. It is a remarkably plump fish, its body as thick as any arm, but tapering off finely at head and tail. We have been to see the sport. A dense crowd throngs the forecastle, and even the bowsprit and jib-boom. Numbers of men are down among the chains, and others on the very back of the figure-head, her Royal Highness the Duchess of Kent. A Norwegian sailor is down on what is called the dolphin-striker, or martingale, with a fine-grained barbed prong at the end of a pole which is attached to a rope. Making a sort of stirrip of a cord, he stands on it with his bare feet, and watches for the bonetas. They are seen coming at a few inches below the surface of the sea at a prodigious speed. Some are leaping out of the water, and the flying-fish of all sizes, even to little ones that look like white grasshoppers, are springing out of the water to avoid them. They are the prey of the bonetas, and very fat these fish are on such dainty fare. The scene altogether is striking—the sea entirely blue, the breeze curling it up on all sides in white foam, the billows of roaring foam rolling forward from the advancing vessel, and the human mass looking over at the the spearman. There! He darts down his barbed prong, or grains as they call them, and up comes the bright plump fish, quivering, and like a fish of purple and silver. As we advance, we expect plenty of sport with bonetas, sharks, dolphins, albacores, and albatrosses.

Saturday, *July* 3rd.—We have had for two days close, cloudy weather. I never saw thicker clouds in England, and the captain says such always prevail in these latitudes. We are now in the 16th degree of north latitude, and are yet nearly 1,000 miles from the Cape. Here we get into the variable winds, and may lie about a good deal before we get into the south trade-winds. All the fish have vanished again. I write on the sky-light frame on the poop, and find it very pleasant. Mr. —— has brought out his guitar, and gives us a few songs occasionally after tea, which makes the time go pleasantly. We have got our light things on, and every morning have several buckets of salt-water thrown over us.

4th.—Last eveuing we espied a sail coming down the wind right toward us. You may suppose the excitement, as it appeared homeward-bound. There was a whole bag of letters ready within, and people were running down to seal others and be ready. But I did not move, for the captain said it was no use trying, though my opinion is, that, with a very little effort, be could have lain in her way; but ——. It was just getting dusk, and we soon lost sight of her in the haze.

There is among the intermediates an emigrant family who have seen better days, of the name of ——, consisting of eight individuals, the youngest child being a little boy of about six, a queer little picturesque animal, with a pale countenance and large eyes. The family appeared indisposed to communication with any one; the look of the little lad, however, struck me, and I carried him out a bunch of raisins from dessert, and still do so occasionally. This opeued the hearts and mouths of the parents, and they asked me if I had made an excursion dowu below. They said that the condition of the people there was pitiable—that they themselves took their space before the ship was in harbour, and came on board at Plymouth, and found one-third less space than they had paid for, and neither light nor air. I fear that these sort of complaints are too common in emigrant ships; but I am glad to hear that the provisioning is really good. To add to the annoyances below, are the scamps, the pig-drivers I spoke of, and a set of rude, drunken fellows. Some of these men are characters in their way; but they belong to the class of idle hands, for whom Satan is always findiug mischief to do, and they are a perfect annoyance to the more respectable class below.

On Sunday morning we present a very orderly appearanee. At half-past ten we are assembled to prayers; the doctor reads them, and the captain and chief mate stand at the gallery of the poop with him, and make the responses. We sit round on the poop, and the intermediates below. The whole thing has an interesting look, and the idea is beautiful, of the inhabitants of a solitary ship gliding over the great loucly ocean, thus making their voices heard in prayer to God. But I am sorry to say that, beyond the appearance, there is a little monotony in it, and very few of the intermediates attend. The sailors of course are there in their best clothes, looking very different animals to what you see them in their every-day working dress—their faces washed, their hair combed with a certain homely degree of smoothness on one side, and their black handkerchiefs and check shirts, and aiming at bringing grave aud pious looks into their faces, are at once edifying and amusing.

6th.—After three or four days of close muddling weather, a cloudy sky, a hazy horizou, and a warm enervating wind from the coast of Africa, we have again a tolerably clear sky and a fresh breeze. There is a brig in sight from Monte Video, and we are glad to see that the *Kent* outsails her, and is fast leaving her behind.

The pig-drivers still continue their pranks. On Saturday night they had again two more pigs down between decks among the intermediates. The oddity is that nobody can hear the pigs squeal when they take them out of their sty and carry them down. It is quite clear that the sailors connive at it for grog, otherwise it could not be done. Last night the captain prepared himself with a dark lantern and a stout stick, aud lay in wait, but they were aware of him and did not appear. How these half dozen ruffians can be allowed to disturb and molest the intermediates I cannot conceive; but—

To-day we are in latitude 10° 19′, longitude 24° 45′. We are about 500 miles off the coast of Guinea, and about 600 from the

Cape. We are nearly opposite Sierra Leone, and on the north entrance of the Gulf of Guinea; that is the point from which the slaves are generally brought—the Gold Coast, the Ivory Coast, with Cape Coast Castle, where poor "L. E. L." lies, and behind which are Ashantee, Dahomey, &c. You may imagine that when the breeze comes thence it is hot and enervating; yet we are all well, and A. and C. seem very much to enjoy themselves.

Our captain is a right good fellow,—very obliging, and, in his way, a character. He has a set of phrases which he always makes use of; for instance, whenever he sends up "the Union Jack" in signalling a vessel, he says, "First, let us send up the dread of all nations!" He never omits this. When the ship rolls, and threatens to upset our dishes at table, he says, "Gently; good ship, so! good ship!" Very often he practises the joke of helping himself to meat—"Shall I help you to some beef, John?" "Yes, if you please, Terry." When he is warm with carving, he lays down his knife and fork, and often exclaims, "Oh, my beloved country! what I suffer for thy sake!" These are a few out of many of his phrases. He has a scolding, blustering way with the sailors; but at bottom he is a very good fellow. Constantly, after he has done his dinner, he will say, "Well, I don't know how it is, but I am only just getting an appetite," and he will pile a plate with fowl or tender mutton, and heap it up with all the best sauce and vegetables on the table, as if he were going to eat them; but it is only to send down to "that poor widow with the sickly children;" or, "that poor lad for'ards there, who is but in a bad way!" It is the same with gooseberry-pie and plum-pudding. Every now and then he has a great plateful sent to him, as if he were going to begin lustily upon them, and at first I was astonished; but then always comes out, "Doctor, a nice bit of pudding or a bit of pie would not hurt No. 21 or 34," or whatever it may be—some person who is ill or weakly from illness. Besides this, he has seen a deal of the world, and I like to hear him spin a yarn occasionally. A. told me how much affected he was at the dreadful accident which occurred, on their arrival at Plymouth, before I went on board. The anchor was just let go inside the Breakwater, and A. had gone into the cabin to change his coat before going on shore, when he heard a dull, heavy fall on the deck overhead, which seemed to shake the very ship. He thought no more of it than that somebody had had a dreadful "slide," and immediately afterwards went on deck. There he immediately saw that something dreadful indeed had happened. People were running from all parts of the ship, and gathering with horror and pity in their faces round the foot of the gangway ladder; others were climbing into the rigging, and looking down to the same spot. Looking down from the front of the poop, A. then saw one of the ship boys, a handsome lad, who was a favourite with everyone, lying on the deck like a figure in marble, his eyes closed, his lips relaxed, and two slender streams of blood trickling, the one from his lips, the other from his left ear. The captain, the mates, the doctor, and several passengers were stooping over him, and the doctor was rapidly cutting the hair from above his temples. He had fallen from the second hoop of the mizen, first on his back on the boom, then on his head on the deck; and, singularly enough, the spot where he fell was only four inches from the spot on which another boy had fallen during the former voyage. A. says that the behaviour of the captain on this occasion evinced the most tender and humane feeling, and tears flowed from his eyes. The poor boy was removed to the hospital, where he was left with little hope of recovery.

July 6th.—This morning we have had a regular tropical rain. It began about four o'clock, and lasted till eight; it came down drenchingly, and the air at the same time was excessively hot. It was an amusing scene, just as it was getting light, to see the sailors and lots of intermediates out in their oilskin coats and sou'-westers, catching the rain-water. All sorts of pails, tubs, pans, and kegs were assembled on deck; tarpaulins were stretched over the hatchways, to keep the deluge from the passengers below; the awning which we have over the poop, and which extends to the main deck some yards, was tied up at the corners, as a reservoir, and then the corners were let down when it was pretty full to spout it into large tubs; but, instead of into the tubs, it generally came down on the heads of the people themselves, and there was plenty of running and laughter. The fun was grand for an hour or two, all the actors seeming to enjoy it greatly, although those who were not well defended with oilskin were drenched like drowned rats. It was amazing to see what a quantity of dirt and rubbish the deluge washed down from the decks, for, though they are swilled, and scrubbed and swabbed for a couple of hours every morning, the sailors now shifted away all the boxes and other things from the piazza in front of the cuddy, and swept the rubbish away which had accumulated behind them; for there numbers of the intermediates are always sitting, and there many of them dine and take their glass.

Another homeward-bound vessel; but again too far off. It is provoking!

We have had an auction of a sailor's effects. It is the custom, when a man runs away, to sell his kit, as they call it. The captain was the auctioneer. The box of a sailor, who ran off at Gravesend, was brought out and opened; he had evidently gone off in his best clothes, and a precious lot of old blue jackets, shirts, and trousers, with some white ones, and a lot of books, chiefly without bindings, were the contents. These sold off to the sailors at astounding prices—at least 300 per cent. more than they were worth. The "Seaman's Manual," "Reynolds's Mysteries of the Court of George IV." a quantity of numbers of the "Illustrated News," "Adventures at Sea," an old Bible and Prayer-book, and a span new Bible and Prayer-book composed this young seaman's library. His little box of needles and thread fetched a huge price, and a quantity of gaudy cotton pocket or neck handkerchiefs sold separately at from 9d. to 1s each. It was a curious and amusing scene.

Our experience of the tropics, so far, is quite different to what I expected. I expected a bright, blazing sun; we, on the contrary, have had nothing but dense clouds and haze. The air is as steamy as in England, and our cabins, at night, are only just tolerable, with the scuttle and door wide open, and only a sheet to cover us. They say it is always thus in these latitudes.

July 8th.—To-day, we have been four weeks at sea and yet are only in latitude 8° 20′, and, I am sorry to say, going far too much to the east, being in longitude 20° 52′. The wind is south-west, which drives us towards the African coast. Yesterday, however, the weather changed, and again we have beautiful skies, and a sea of ultra-marine, which, I suppose, is named from this very hue of the sea, as one would say, ultra, or intensely blue. Last night two immense sharks made their appearance close under the ship's quarter, and this morning a pilot-fish was seen, showing that the monsters were somewhere near at hand; but, as yet, they have not made themselves visible. These pilot-fish not only act as guides to the shark, but they seem to be his dogs, and show the same attachment to him that the dog does to his human master. A gentleman on board, who has seen the shark caught, says, that the pilot-fish follows him to the top of the water, and when he is twisted out seems in great agitation that he too cannot follow.

Last night the clear skies permitted us to see, for the first time, the Southern Cross and various other southern constellations. At first, as is often the case, I was somewhat disappointed in this celebrated cross, but it soon impresses itself on your imagination, by shewing itself, ever prominently, whenever you face the southern heavens. It was low in the sky, and the north star was equally low in the opposite direction. The constellation consists of four stars, three of them of the first magnitude. As it, appears, the stars stand somewhat thus—⁘ It is only once in the year quite perpendicular, and as it circles in the heavens goes upside down. When the sky is very clear you see several other stars within the four, but these do not break the outline. Seen from night to night, it will become very striking. You remember the mention of it in the Forest Sanctuary. Not very far from this I observed a brilliant little constellation springing out of the galaxy, which I called the lily-stalk, for it seemed to resemble a splendid lily growing on the heavenly plain. It also consisted of four stars. But my lily-stalk turned out to be the curled-up tail of the magnificent constellation of Scorpio. This constellation sweeps through a great space, the fine star Antares forming his large ruby-like eye. Still more eastward appears the Southern

Crown, a large and brilliant constellation, presenting a fine oval and occupying a vast space. Through the captain's telescope we saw Jupiter and Venus, which appeared like little moons. Venus was near setting in the west, and Jupiter was near the zenith, so that you also see those stars. We greatly enjoy sitting on deck at night, and in the coolness of the breeze, watching the brilliant heavens. Whether it is owing to the particular light I don't know, but the southern side of the heavens appears, by far, the most brilliant. The great number of stars, mostly of the first magnitude, scattered over it, is amazing. When the sun goes down you see only those large stars which thus give the great outline of the constellation most distinctly. Eastward, near the lower extremity of Scorpio, shines out the Southern Crown. Then Scorpio lifts aloft his head, as it were, with a brilliant diadem of stars, and sweeps his body, in fine curves, down half the heavens, and more southward, beam superbly the parallel stars of gemini, Castor and Pollux, and close to their right shines out the Southern Cross. No scene can be more glorious, as I sit, and thus gaze at it. The sky so deeply, beautifully blue; the stars, as the night deepens, coming out in myriads, but the great ones maintaining their gorgeous superiority. Jupiter shining intensely down from the zenith, and the galaxy, which we are directly beneath, coming up like a great smoke of stars, and dividing into two columns; those uniting again and arching over the whole sky, from west to east, like a sublime arch of diamonds, or a pathway for the celestials. I expect, as we advance, the heavens will become still more clear, and therefore, more resplendent.

12th.—We have sailed again out of our fine weather, and have been driven by the east winds dreadfully down the Gulf of Guinea. We are now in latitude 5° 57′, longitude 15° 12′, which leaves us, as you will see, only 100 miles off Liberia. We complain of the English climate; it is paradisaical to this climate, which is not only excessively cloudy and moist, but at the same time boiling or rather steamingly hot. The perspiration pours off me; but I do not trouble myself about it, but keep quiet, and feel none the worse for it. But I can well conceive how deadly such a climate must be. To-day we have fallen in with three other vessels, but all outward-bound, and too far off for signalling.

The pig-drivers, or Gravesend scamps, have had another spree; pigs down again below, and poor Prince with a tin tied to his tail. They are the nuisance of the ship. This morning a vast quantity of skip-jacks, bonetas, and albacores, are leaping about the vessel. They are in pursuit of the flying fish, which beneath this dull sky look no longer like ivory larks, but almost black, and fly an immense way. Some of the fish leaped out of the water at least four or five yards in pursuit of them, and you may imagine what is the weight of these high-flying fish, when an albacore, caught this morning, weighs forty-four pounds. C. and I were on the forecastle, and saw it caught. It was hooked with a line, and then transpierced with the grains. It resembled a boneta in shape and plumpness, but had not the longitudinal stripes on the sides, but a golden tinged line running along its sides, and from its back fin to the tail a series of gold-coloured vandykes. It had the same dark purple back, and was almost a solid mass of flesh, having very little intestines. Sometimes they contain a number of flying-fish which they swallow whole, but this fellow had not had his breakfast. It was almost four feet long, and had wing-like fins sticking out of his sides, which enable these fish to spring a great height into the air, and swim as they do along the surface of the water like arrows. The flesh of these fish is whiter and better than that of the boneta, which is of a dull salmon colour, and eats like dry, poor salmon. By-the-bye, the preserved salmon we have on board is excellent, and eaten with pickled chillies is superb.

July 15th.—Since Saturday, we have been lying knocking about in one wretched spot, trying in vain to cross the line and get into the southern trade winds. We have had the same dull steamy weather, and, being on the lee-side, our cabin has had no breeze through it, and has been inconceivably hot.

Evening.—We have now a strong, though not quite a right, wind; and the captain says he will hold on this course for twenty days. We hope now that we have got into the southern trades. We are also now on the weather side, and have a charming breeze through our cabin. Another albacore has been caught, weighing 76 lb.

July 18th.—Seven o'clock in the morning. A homeward-bound vessel in sight, and another chance of sending letters. I therefore now close my diary with the pleasing intelligence that we are really now in the trade winds, and likely to go on briskly. There is a strong fresh breeze, which makes all very comfortable. The captain, as I see from his former routes, marked on his chart, has always made a good start from this point.

The ship is the Edward of Marseilles. It came close under our stern, but, I am sorry to say, to little purpose. No effort was made to get letters off by her. The French captain was never asked to take them, and yet it is evident that he expected we wanted *something*, from our lying to, and his making down directly to us. Our letters were all in the bag, the boat lowered, and he might have had them. A riddle was this day asked at dinner, "Why ought we to have had new-laid eggs on board to day?" Answer.—"Because the captain might have made the ship lay to (two) if he had liked." We crossed the line this morning; the weather is beautiful, and we are going on at nine knots an hour. We have five or six buckets of salt water poured over us every morning. C. likes it as much as either of us. We drink principally water with a little lime-juice in it, sweetened with sugar.

This morning Master Jones appeared in a new character. As the sailors are not allowed to have any fun in the Neptune line, they indulged themselves with the innocent pleasure of dressing up Master Jones as a little sailor. He is really a nice-looking little fellow, and full of spirit, as you may believe. I fancied him to be about the size of Tom Thumb, and in consequence of a discussion on the subject he has been measured, and is found to be 3 feet 3 inches high. Sam, a tall, handsome sailor, has taken a particular liking to the lad, as indeed have all the sailors, who must have a pet of one kind or another. They have some dozens of kittens that have been born in the ship since we came out, and they are rearing them all. In India they sell for a good price, but as they are, we hear, intending to a man to be off to "the diggings," they will not reach that market this time. Master Jones, however, as well as the kittens, being a great favourite, he has lived for some time almost wholly with them in the forecastle. They have given him, or rather stuffed him with a share of their mess, and he now came forth in a new sailor costume—blue shirt, white trousers, and white cap with a green band. His trousers were made to fit very tight about the hips in true dandy-sailor style, and he was followed by all the sailors coming up to prayers, for it was Sunday, in their Sunday clothes. Sailor Sam walked close behind him, looking something prouder than if he had been the lad's own father, and all the other sailors looked vastly pleased and proud of their minikin mate. He had his knife, like all others, with a hole bored through the handle and hung by a string, or in sailor's phrase, *lanyard*, to his waist, dangling on his thigh.

The spectacle excited the utmost attention; all eyes were turned towards it, while a crowd behind came up cheering and hurrahing. Of course, he was brought upon the poop and a number of pence were put into his pockets. I only hope that this metamorphosis may not lead to the breaking of his neck, for now that he fancies himself a perfect sailor he will be in more danger than ever. I saw him just now climbing the ropes by the mainmast, at least twenty feet above the deck. C. prophecies that *he will be deceased before he gets to Melbourne.*

20th.—Going with the trade-winds at 8½ knots an hour. Master Jones, in spite of the useless promise that the captain made him make, that he would not go among the sailors, for which he was to have some raisins, was out this morning in his sailor's dress, with bare feet, trousers turned up and besom in hand, helping to wash the decks. The captain asked him if the sailors gave him any rum; he shut his eyes, shook his queer, knowing little head, as much as to say, "no;" but he knows very well that they do—he told somebody else that he got nothing in the forecastle but "biscuit, salt-junk, plum-pudding, and duff." We have this afternoon passed another homeward-bound ship, but she was too far to the windward for us to get near her, nor did she attempt to near us. The captain said she was one of Bligh's ships, of London, which trade to the Mauritius. We

signalled her, but she only hoisted her English colours, and though we gave her the name of the "Kent," she did not give us hers in return. I hope, however, she will have the courtesy to report us.

23rd.—We are pushing on with a strong side-wind, and are making good progress. Since we crossed the line on the 19th, we have advanced into the 14° of south latitude, and 28° west longitude. At this rate we shall get far into the tropics next week, and if we hold on thus, shall make a very good voyage after all. The only thing that troubles me is our not being able to send letters. Had we done that we could have had nothing to wish. The strong wind has made the ship roll and pitch immensely, and made a good many people squeamish again. Being obliged to keep the ship's head so much to the wind she goes greatly on one side, so that the deck is like the roof of a house, and only good walkers can move about. I am glad to say I have as good a pair of "sea legs" as anybody, except the sailors themselves, and they are like flies, and could walk on a ceiling I dare say, if they tried. It is rather difficult the getting one's meals, for everything is running away; and shaving is queer work in brisk weather. Certainly it is a species of madness that induced men to become sailors. I often sit in an evening at the stern, and watch the wake of the ship. The water comes streaming from the rudder like a sea of diamonds, and ever and anon the sea-fire, or phosphoric light as we call it, is stirred up and floats along in large waving masses, and you see it below the surface flashing like marine lightning. It is very different here to what I have seen it on our coasts, where it is regularly diffused through the water, and gives the whole a fiery look. The dark indigo-colour of the water under the stern, and through which the light masses flow, is wonderfully beautiful.

The other day we passed through the most immense shoal of porpoises which we have yet seen. You saw them coming, leaping and running from all sides towards the ship, even to half a mile's distance, as if there were a cry among them of "A ship! a ship!" and all were breathless to be at it. They kept along with us for some time, and then all disappeared in an instant, as is their custom. I suppose, when they have sufficiently satisfied their curiosity, some old fellow says, "That will do! Nothing particular!" and they quietly drop astern.

I have made a visit between decks. What a scene! The whole length of the place darkened with tins, and other apparatus for cooking and eating, hanging to the ceiling. The little crowded cabins with women sewing or nursing in the open doorways, and men sitting tailoring, or doing other such like work; the cabins for the most part without scuttles, or other means of air or light, except from the door, and the smells sickening. How people have lived down here through the tropics I cannot imagine. There is one family, that to which my little pensioner for raisins belongs, whose case is very bad. * * * They say that, through the night, for they spend the whole day on deck, they are never free from headache. Many of the cabins of the intermediates are regular black holes. The hospital is a little dungeon-like nook under the forecastle, quite away from air, and without window or vent of any sort; only one patient, fortunately, has been condemned to it. I shall have a good deal to say on the fitting up and fitting out of these ships elsewhere. Luckily, the weather has enabled the people to spend most of their time on deck, and this has kept them in health.

How beautiful again are the nights! The moon no sooner died out than she revived again. Scarcely a night has passed without her. And now she goes right up, and at a particular hour stands at the zenith exactly over our heads; Scorpio at the same time is also near the zenith, and the Southern Cross, followed by Castor and Pollux, begins to descend toward the sea, becoming first diagonal, and finally disappearing head foremost. The North Star is now quite gone, and only the horses in Charles's Wain remain above water in the north. The sunsets continue magnificent, and at that time light clouds seem to arrange themselves as for pictorial effect all round the horizon, tinged with the loveliest colours, while the sky between them is of the palest, finely rose-tinted gold, and above of the most beautiful bird's-egg blue-green.

We saw some time ago the upper portions of two water-spouts. They hung like huge funnels from a range of dark cloud, the mouths adhering to the cloud. When perfect they had been too distant for us to see them. But the other night the officer on watch saw two others, near the ship, quite perfect.

Monday, 26th.—Yesterday we past the island of Trinidad, a volcanic pile of rocks, 4,000 feet high. It is only six miles in circumference; it is uninhabited, and only touched at by South-Sea whalers, who occasionally remain a few days upon it when they have time on their hands. There were formerly a good number of goats and swine which had been left on the island, but these are now said to have been hunted and destroyed by the whalers. There is vegetation I believe in the upper valleys, but it looks only like naked rock standing high on the solitary sea. We are now in south latitude 21°, and west longitude 30°, so that we have this week gone 1,200 miles. We have yet a three weeks' sail to the Cape, and thence a good month or five weeks to Melbourne. Our voyage, I suppose, will occupy about fourteen weeks.

28th.—Another home-bound vessel in sight. God grant that we may get our letters off by it. The Captain and everybody are busy finishing their letters. We are now in latitude 24° south, and longitdue 29° west. So you will see where we are. We are all quite well and happy.

Yesterday was a charming day, and almost calm. Last night we sat on deck till about one o'clock. A splendid moonlight night, such as I imagined in the tropics, the moon above our heads, as light as day, and the people dancing in various parts of the ship.

We are now calculating on a rapid voyage; I, therefore, shall only add, God bless you all! Remember me kindly to all inquiring friends.

THE SISTERS IN ART.

PART V.

Esther was, therefore, just the sort of person to influence a character like that of Alice Law, who had been already taught, by the difficulties she had met with in all attempts of a truthful and original kind, that only in so far as we worship and are taught by the works of God, and cultivate the mind whilst the hand is diligent, can anything of excellence be achieved. Alice was not long in perceiving the worth of an education like that possessed by Esther, in strengthening and making fruitful human thought, or its immense power in an artistic relation. She, therefore, under Esther's guidance, sought for a portion of these same advantages; and this was not difficult, for they were inseparable friends—as good little Mrs. Silver, as soon as she found that Esther had no mother, and no other home than a lodging in the neighbourhood of the hospital where her father resided, would invite her for a week or two at a time to be her niece's visitor.

In this way the winter was passed by in that little studio so warm and still. Yet, in all this time, Alice had never seen her relative's eminent lodger, though she often heard his foot on the private staircase, and several times had heard Mr. Beaumont describe him, as a grave, stern, absent man, of some fifty years of age. Indeed, beyond old Nancy, and the valet that always attended him, none in the house ever saw him, as he only went thither for business purposes, to dine, or rest after his lectures, or occasionally to sleep. Of course, such a lodger was quite a sinecure, and accordingly prized, especially by Alice's old uncle.

Of the four sketches of the human hand, needed by poor old, half-blind Guiseppe, as copies for his wax-modelling, Alice, in her leisure, had completed two, which had served so well, in point of beauty and accuracy, as to make the old Italian a considerable gainer, by the power they had afforded him, of accuracy and perfection in his work. Now the spring came on he needed the other two designs, and one evening sent Lizzy back on her return home from the shop, to say if one or both were ready, how grateful he should be, as the models had been sent for that afternoon. When Lizzy went in into the little studio with Guiseppe's message, Esther was seated beside her friend, helping her with her German lesson, for Alice had now a German master twice a week, and when they heard the old man's need, they at once agreed, that the

designs must be finished that night, as the money was of extreme value to one so poor.

"But, dear," said Esther to her friend, "we cannot fill up these designs from mere recollection alone, we must either have a drawing, or a preparation, as a guide; and it is too late to go into the Borough to-night. Besides, as you know papa is out of town, what can we do?" Then she added, when she had thought awhile, "But I am sure we should find the two preparations in Dr. Falkland's rooms, let us go and fill up the designs there—there can be no harm."

"No, Esther," replied Alice, "I should not like to break any promise to my aunt, and go in there without leave; and this she wouldn't give. For, whether from prejudice, or fear of my uncle, she guards those rooms as if they held a treasure or a mystery. The secret is, I think, that when the doctor took the rooms some twenty years ago, he made inviolable privacy one of the conditions of remaining—and this from, perhaps, observing my uncle's large organ of curiosity. For, as Nancy often says, there is nothing in the rooms which would frighten a new-born babe."

"No, dear," replied Esther, "the doctor's celebrated anatomical museum, fills two of the vacant rooms in —— Hospital, which papa will some day show you. But, for all this, let us send for your aunt and ask her; we can tell her the truth, and you well know she loves you too well to refuse *you* anything."

Mrs. Silver was therefore sent for: she came, and there was a great consultation, and much explanation of Mr. Silver's peculiarities.

"My dear child," spoke the little woman tenderly to her niece, "if Silver were only to suspect, much more discover, that intruders were permitted in the doctor's room, he would instantly fancy we should lose our honoured lodger, and *then*—bless you, my child, you cannot think how he sets his heart on these things. What would he say about the two hundred a year we have? Why, he'd go mad, and think nothing short of the workhouse was for our old age. Yes, this money—because it saves us rent—is more in his idea than all the rest he has. And yet"—here the little woman dropped her voice—"he has more than fifty thousand pounds to *my* knowledge; and, bless you, he doesn't tell me everything."

But the good little woman, whose love of her niece, be it said, was growing as great as that of her husband for his money—was, like others of her sex (alas! for the human woe that comes of it) never nearer saying "yes" than when she said "no;" so, in a little while, her consent was gained, that, Dr. Falkland being out, they should, when Silver was in bed, repair to the doctor's study, and find there what was needful for finishing the poor Italian's two designs.

It seemed, as if purposely, that the old man sat up unusually late that night; but at last they heard him creeping up stairs, with his usual load of the cash-box and boots under his arm; and then, when all was still, and with somewhat of breathless trepidation—so much mystery and awe had there been thrown about the place—they stole quietly along the passage, and entered through the ante-chamber into that one of the suit of rooms which they knew to be the doctor's study. But, as old Nancy had innocently said, "there was nothing there to frighten a baby;" nothing more than a plain, yet handsomely furnished, study, with a few glass-cases round, and a fine collection of books of reference. The room was nothing more than what a lawyer's business chambers are to his house; and the young friends smiled quietly at one another, when they perceived how groundless was little Mrs. Silver's great romance. In one of the glass-cases, amongst a few other anatomical preparations, was what they sought; so, with breathless haste, almost without looking—so tremulous was their fear—they sat down to sketch what was needful to the two designs, and had proceeded to near a completion of the points required, when they heard a passing vehicle stay suddenly in the street, and an instant after some one knock loudly at the hall-door. At first, Alice thought they must have heard amiss, or that some strange cabman had knocked at the wrong door; but presently she was convinced of her own mistake, by hearing her uncle descending from the floor above, and Nancy unchaining the hall-door below. In breathless haste, they were gathering their drawing materials together, in order to make a speedy exit, when old Silver, attracted by the gleam of light beneath the doorway, as he stood upon the landing to listen, entered, and suddenly stood before them, pale with surprise, rage, and fear: for he was at first fearful that burglars were in the doctor's rooms, and that he should have to meet them single-handed. Now, fear of a new kind seized him, and he stood before Alice, so pale and hideous with rage, as to increase her terror and that of her companion a hundred-fold.

"What—what—what are you doing here?" he gasped, "ruining me, ruining me—robbing me of my yearly rent, eh?"

"Dear uncle," said Alice in an attempt to explain, though her words clove to her lips as though they were parched with fire.

"Don't dear me—never dear me again. I'll hate henceforth, as I once hated your mother." So saying he clutched Alice by the arm, as though he would drag her from the room rather than let her walk; but she eluded him, and, with Esther, had nearly reached the door when it opened, and the doctor, a fine, stately, reserved man, came in, followed by Nancy, and hastened to take up some letters from his library table, as if he had expected them, and they were of great importance. He did not seem to observe the two girls, who, indeed, had vanished as quickly as shadows, nor perhaps old Silver, who, though in spite of Nancy's winks and nods, would remain to apologise.

"I am very, very sorry, Sir," began the old curiosity dealer, with an amount of humility that sat ill upon him—

"And as I have, I fear, disturbed you and your good wife, so am I," said the doctor, looking up for a minute from his letter, as though mistaking old Silver's meaning to be one of complaint; "but circumstances necessitated, on reaching home, my immediate return to town. I am truly sorry, and please make my apologies to Mrs. Silver. Now, Nancy, get me some wine and a biscuit. Mr. Silver, I wish you good night, as I have immediate writing to occupy me." At this unmistakable hint that his absence was desired, old Silver crept from the room, but only to adjourn to that of his niece, there to give vent to his fiercest wrath. Alice endeavoured to soothe him, and, thinking the truth a much more available plea than any mere pretence, however plausible, told him without reserve that, before this night, she had never set foot in the doctor's rooms, and that now it was only to perform an act of kindly charity towards Guiseppe, and by her aunt's consent. But the information given on these two latter points was only like adding oil to flame; it increased the old man's anger and cynical humour tenfold, and when he had said all the bitter things he could think of to Alice, he repaired upstairs to his wife to repeat the same, and add to it the information "that, depend upon it, their lodger would now never stay, and consequently, losing £200 per annum, he was a ruined man." And when his little wife smiled through her tears at this, his anger only burst out afresh.

In this sort of temper he continued for days, scolding and finding fault with everybody and everything, till he crowned the whole by dismissing Lizzy one morning, and forbidding her return on any account whatever. This unkind and peremptory dismissal of the child was a cause of great grief to Alice, who began to take much interest in the progress of her little pupil, as was but natural, for she had a sweet and genial temper, which grew still more loveable from its daily association with kindly natures.

Whilst things were in this state, Dr. Falkland was in Paris, whither he had repaired, at the desire of the French Government, the morning after his sudden return to town; and here he was detained for a fortnight by the business of an extraordinary criminal trial, in which the needful testimony of those greatly skilled in anatomy formed a remarkable feature, and, to add his opinion to those of others, the English anatomist had been summoned. The very morning the Silvers expected the doctor's return, his only sister, who kept his Berkshire house, called to say that she had heard from her brother, who might not return for some days, but in the meanwhile he had begged her to inform them that, previous to his departure, he had taken a town-house, whither he should remove on the next quarter-day. To have seen old Silver's face when he received this information, would have startled some with weak nerves—it expressed so much spite, avarice, and rage; for minutes he could not speak, but sat listening to Miss Falkland's conversation with his wife, like one that had just received tidings

of some great bereavement or awful calamity. Presently he told Miss Falkland of his niece's trespass, and his certainty—a certainty nothing would shake—that to this he should owe the loss of so valuable a lodger.

"I assure you not," said Miss Falkland, "or if so, it is unknown to me. The truth is, my brother has long been negociating for this house, as he wishes to remove his anatomical collection from ——— Hospital, and have a permanent home in town, large enough to receive me and our household of servants."

Yet nothing could persuade old Silver of the truth of this. No! it was owing to his niece that he should lose so good a lodger—the daughter of that dead Anne who had so vilely disappointed him with regard to the possessions of the Dutch picture dealer. He waited till Alice came home from the academy late that afternoon, and then a storm commenced, to which the previous outburst bore no comparison. He reproached her with the faults of her dead mother, of her own dependence on them, of the benefits she had received from his hands, not only for herself, but her friends he had had to maintain; but this he could do no longer; he was now, of course, a ruined man, as any one would be who had the narrow profits of business entirely swallowed up by rent.

At reproaches so mean and unjust, Alice's warmest indignation was roused; she spoke what she felt, and this with calm earnestness.

"Uncle," she said, "if it were only for the reproaches you have heaped upon my poor mother's memory, I would not remain another night under your roof; but, more than this, no one shall reproach me with being dependent, when I am not so. Though my aunt would take no remuneration for my board and lodging, I have striven to give an equivalent by serving you in matters of business. No! I will never be reproached a second time harshly. The gift of your whole fortune now should not change my resolution! I shall go, and with but one regret, to leave my aunt and Nancy."

"Why are you — all of you — always talking about my fortune?" said the old man, sulkily.

"Uncle," replied Alice, "you know you have money, and that you make it your idol; but the time will come, and when, perhaps, you least expect it, in which you will find all its worth will not weigh against the lightest reproach you have cast upon me to-night."

The old cynic made no answer.

Firm to her resolve, in spite of all her aunt's and Nancy's entreaties, she went up stairs, and packed up such of her things as were easily portable. She then made Nancy call a cab, and, after affectionately parting with her aunt, who amidst her tears confessed that it was the only thing her dear child could do, she took her departure, and was driven straight to Esther Beaumont's lodgings in the Borough. Esther was not much surprised, either at Alice's arrival, or at her determination, and they sat up till far into the night to talk over future plans of living together, and working with one interest as sisters in art. In the morning, Esther summoned her father to their councils, and he not only approved of their plans, but liberally offered to add to his daughter's income, and ended all by going that afternoon and hiring rooms for them in the house of a widow living in Fitzroy-square. In two days' time Alice and Esther were settled in their new home, though as yet it was but scantily furnished and adorned; and here it was that good little Mrs. Silver and old Nancy came, both declaring that, come what would, old Silver should not prevent their frequent visits.

In a week they had arranged their little studio, and set down to work, and, aided by Mrs. Cohen's goodness, Lizzy was soon entirely with them as sister and friend.

Five years glided by, and we resume our story. In that time many events had occurred which need a brief narration.

In the first place, the three friends thus brought together by circumstances had never separated. Time with them had effected no other change than to draw them together into a holier and purer communion of sympathy, taste, and pursuit, and to evolve from the unity of separate talents a result, of which singly they were not capable. In the first year of their struggle with life, both artistic and domestic, Lizzy's humble, cheerful services were of the greatest use to her friends. At the end of that period she entered the Government School of Design, already an admirable proficient in rudimental art. She might have returned home at this period, for her mother died, and there were new prospects of happiness for her, but she preferred remaining with those who had been such true friends to her, and whom she loved so well.

With his wife's death, Wilson's fortune improved. His steady, able conduct in the house of business, in which, through Mrs. Cohen's kindness, he had obtained a situation, had so won the goodwill of the principals as to lead to his promotion to the vacant place of foreman, at a most excellent salary, whereupon he removed to a pretty cottage in the northern suburbs of town, took home a widowed childless sister of his own to keep his house, devoted his spare time to the pleasure and improvement of his long unhappy children; and proud of Lizzy's talents and their probable development through the noble guidance of those who were at once so pure in life and lofty in their view of art as Esther and Alice, he thenceforth persisted in contributing some share of the necessary expense attending her board and education. Guiseppe moved with the Wilsons to their new home, for the same death which had brought so much relief to the general household had been equally a blessing to him. His favourite casts, preserved through the wreck of all his better fortunes, he gave to Alice and Esther, and thus their studio, almost from the first, was richly adorned with copies of all the mightiest things Sculpture had given to the world. One only figure he retained. This was not a cast, but a figure in marble from his own chisel of which that daughter who had been at once his ruin and his shame had been the lovely model. A beautiful and perfect piece of art it was, and a proof of what the artist had been capable of, when in his prime, had the needful patronage been forthcoming; but, as he sometimes said, he had perhaps done as much or more, by popularising art through cheap casts of the masterpieces of the chisel. As it was, no poverty or need had ever tempted him to part with his "Child amidst Flowers," for when the fame of this fine piece of sculpture had got abroad, even through the shadows of his obscure and indigent life, and the agents of patrons of art, and patrons themselves, had sought its purchase almost at any price, his answer was always a stern negative—just the same as when friends talked to him of his daughter, or strove to win his forgiveness in her behalf, he had ever a negative, and the answer, "That *he* had no daughter, but this in marble—if they would bring him one like her whose image this was, he would own her, love her, part with the marble for the warm human life—but not till then—and that would never be!"

There was another hand that strove to adorn the sisters' studio whenever occasion offered, and this was good little Mrs. Silver, whose sole comfort in life was her thought and love for Alice. Though in a few months' time the breach between uncle and niece had been so far healed, as to induce the latter to occasionally go to and fro to see her aunt, the old man rarely addressed her; and when after awhile the suite of rooms so long occupied by Dr. Falkland still remained unlet, he took his imaginary cause of anger still more deeply to heart, and strove to give it expression in every possibly way. Thus Alice's visits to the old curiosity shop in Soho became rarer and rarer; it being much more a comfort to little Mrs. Silver to pass a chatty quiet evening with her niece whenever opportunity offered, than to be liable, if Alice came, to a scene with her grim old money-loving husband. What was more, the good little woman never went empty-handed, for by a perverse rule, very human in its way, the more the old curiosity dealer was out of humour, drew his purse-strings, or squabbled on points which referred to Alice, the more his little wife elaborated all sorts of generous plans in her mind, and pretty generally, through the aid of old Nancy, carried them out triumphantly.

In other respects Alice was equally fortunate. The good lady whose rooms she and Esther occupied, proved almost a mother to them; and through a letter of enquiry which fell, fortunately, into Mrs. Silver's hand, Alice obtained as much work as she could execute from that manufacturer in the Potteries, by whose workmen the Majolica dish had been repaired.

ALOIS SENEFELDER.

Every man who helps to elevate his fellows deserves to be remembered. The world forgets half its heroes. We are attracted by noise, and glitter, and show, and we shout because others shout. Working away in garrets and out of the way places, fighting the battle of life, struggling for a bare subsistence, are men who are clearing the way, and drawing nigh the advent of the good time we all believe in, and these are the men who deserve applause. Alois Senefelder was one of them. He gave the world lithography, and we enjoy the legacy. Our engraving is taken from a statue by Maindron, and is worthy of the artist and the subject.



SENEFELDER'S STATUE, BY MAINDRON.

The story of Senefelder's life is soon told. He was the son of Peter Senefelder, an actor at the Theatre Royal, Munich. His father intended to bring him up for the law, and placed him at the University of Ingolstadt. But the young man loved the theatre better than the court house. His dramatic inclination showed itself in private theatricals; and in 1789, he composed and printed a little comedy, called "*Die Mädchenkenner*," from which he obtained some applause and profit. This success and the death of his father, by which he was placed in reduced circumstances, fixed his determination of quitting the University, and attaching himself to the theatres. For two years he experienced all the miseries of a green-room life, and he then took up the no less uncertain profession of authorship. As a play which he had written could not be got ready in time for the Easter book-fair at Leipsic, his second publication produced but barely sufficient to pay for the printing, to accelerate which, he passed much time in the printing-office, an anxious, and attentive spectator. He desired to become the printer of his own books. He set about a variety of experiments. He endeavoured to etch his compositions upon slabs of Kellheim stone, in imitation of copper-plate printing. The final discovery we give in his own words:—"I had just succeeded in my little laboratory in polishing a stone plate, which I had intended to cover with etching ground, in order to continue my exercises in writing backwards, when my mother entered the room, and desired me to write her a bill for the washerwoman who was waiting for the linen. I happened not to have even the smallest slip of paper at hand, as my little stock of paper had been entirely exhausted by taking proof impressions from the stones; nor was there even a drop of ink in the inkstand. As the matter would not admit of delay, and we had nobody in the house to send for a supply of the deficient materials, I resolved to write the list with my ink, prepared with wax, soap, and lampblack, on the stone which I had just polished, and from which I could copy it at leisure. Sometime after this I was going to wipe the writing from the stone, when the idea all at once struck me to try what would be the effect of such writing with my prepared ink, if I were to bite in the stone with aquafortis; and whether, perhaps, it might not be profitable to apply writing-ink to it in the same manner as to wood engravings, and to take impressions from it." The result of the after experiments was the art of printing from stone.

Need we tell the future struggle of his life, how his pecuniary resources failed, and how, tempted by a bounty of two hundred florins, he volunteered into the artillery, but was refused; how he became acquainted with M. Gleissner, a musician of the Elector's band, and how they united and succeeded, and business poured in. It would be tedious to follow the various efforts of the man, or to enumerate his lithographic labours; at one time the new art lost credit and reputation, but it was of too much importance to be passed by, too much importance to be long kept secret, soon it became generally practised, and Senefelder saw the work of his life accomplished.

The stone best calculated for lithographic purposes is a sort of calcareous slate, found in large quantities on the banks of the Danube. This sort of stone is indeed found in other localities, some having been discovered in Devonshire and Somersetshire, but they are not so well adapted for the purpose, in some of the most essential qualities as that found in Germany. Even there the strata are not all equally good. A good stone is porous yet brittle, of a pale yellowish drab, and sometimes of a grey neutral tint. The stones are split into slabs, varying from 1 to 2½ inches in thickness, which are then cut or squared into the different necessary sizes for use, and upper surface of each is made level. In this state the stones are sent from the quarry, but further preparation is yet necessary to fit them for the immediate use of the artist, and they are either grained or polished, according to the nature of the work they are intended to receive. Grained stones are used for drawing in the chalk manner, or for imitation of those produced with the blacklead pencil. Writings, imitations of etchings, &c., require the face of the stone to be polished, which is effected by rubbing it with pumice-stone dust and water.

THE DUKE OF WELLINGTON.



DRAWN BY E. MORIN. ENGRAVED BY H. LINTON.

With the demise of the Duke of Wellington, the last link of that chain is broken which connected the present generation with the heroic characters of the period which was ushered in by the first French Revolution. One after another have soldiers, statesmen, and authors, passed away from the scene of action; the rulers of the world overruled and overcome by the all-powerful and resistless hand of death. At length, the most distinguished of them all has bowed his head and died. Thus, then, does earthly glory perish. A few years, more or less, make the only difference between the peasant and the prince. Position and honours possess no immunity from the common lot of mortal men.

The sundering of this link is the parting point between the past age and the present one. The earliest days of the great captain, whose decease we bewail, carry the thoughts back to a social condition the most dark and threatening. Old prescription and new thought were then on the point of engaging in mortal conflict. Despotic governments were all but universal. Even in England, the interests and the will of the few bore sway, and held the land in bondage. The church of three-fourths of Christendom was grossly corrupt and alarmingly effete; opinions not less narrow than repulsive, held the place of practical piety in many Protestant communions. Scarcely anywhere, except in England, did true and healthful religion find a home. The populations of Europe were, for the most part, ignorant and brutal.

Existing social maladies needed a desperate remedy; and in France broke forth that whirlwind which was designed to issue in a new social life. But before the blessing came to birth, what pangs, what throes, what wailing, what ruin! It is our privilege to see and to enjoy the fruits of those toils and pains. Here in our own land are those fruits at once most abundant and most manifest. In England a liberal, intelligent, and beneficent queen is the centre of institutions, inferior, indeed, to what may be desired, but still wise in their purposes, and benign in their operation. In religion, if we are divided in opinion, we are nevertheless cemented together by some unity of spirit; and even in and from our differences we have acquired mental strength, and learnt mutual toleration. Taught by the painful experience of other nations, we have in some measure learnt to unite in just proportions the claims of the past and the claims of the present; and while every year has now long seen the predominance of class interests becoming less and less, at the present moment the will of the people is to a great extent the law of the land, and a practical Christianity goes far to guarantee to every man the possession of his individual and social rights. Among those rights, the most prominent and the most important, religious liberty, a fair remuneration for labour, free scope for enterprise and exertion, untaxed bread and sound education, are now within the reach of most of our countrymen, or seem likely to be so at no distant day. These priceless advantages are the result and the reward of mental efforts, national struggles, and social sacrifices of the highest and most worthy kind. How would the picture increase in brightness, had we time to sketch the discoveries achieved by science within the last half century. The task is the less necessary, because Englishmen are enjoying the consequent advantages on a very large scale, and in every rank of life.

It is by a long, complex, and painful process that our social existence has been renovated. In that process, no one person, perhaps, had a share so great as that of the recently deceased warrior. It is of the outward and material current of events that we now speak. In the world of thought, the position of that eminent man was below the highest. But as a doer he had no equal.

The Duke of Wellington began his public life as the champion of prescription, and as the champion of prescription did he remain active to the last. Attached by birth, education and sympathy to the cause of legitimacy, he fought his battles, and won his laurels in resisting the encroachments of the spirit of change and reformation. More than one great occasion, indeed, there was in his career, when, through the peculiar casting of events, he appeared on the stage as the opponent of despotism and the advocate of liberty. But, if on the field of Waterloo he may be thought to have fought under the banner of social independence and national freedom, he did not the less take a willing and efficient part in that settlement of the affairs of Europe, which handed over its nations, bound hand and foot, to the will of an unholy alliance of monarchs. And though it is true that he earned a large debt of gratitude from England and the world by emancipating Ireland from religious exclusiveness, as well as by acquiescing in the great legislative reforms and improvements to which we owe our present prosperity, it is equally true that he had previously withstood the changes therein involved, and possessed only the negative merit—though negative, still high, and to a great extent peculiar—of making concessions in the right way and at the right juncture, when they were obviously required by a regard to the public weal. In no man's life was the impotency of the individual, when arrayed against the public will, more fully, or more strikingly illustrated. He, the greatest and the purest champion of "things as they are," that perhaps ever appeared, was forced to give way before the onward rush of events, and it was only by placing himself at the head of the stream that he directed it into channels the most suitable, and to results the most satisfactory. A noble and an aristocrat in all his principles, affections, and aims, he, under the higher control of good sense, pure patriotism, and a benign religion, became a practical friend of popular rights, and the buckler of the national freedom. Such is the benign working of our free and liberal institutions, and such is the absorbing and all-controling love of country in the English soul, that party considerations and personal predilections are willingly and readily offered up on the altar of public usefulness and the general good.

The attributes of character which are implied in these statements are tokens of a great man. A great man, undoubtedly, was Arthur Wellesley. In his class, he was, perhaps, the greatest. Never before has there appeared such a happy union of the qualities which make a great captain and a successful warrior. Wise in council and heroic in fight, he was considerate of his own troops, and merciful towards a vanquished foe. Whatever ambition he may have possessed, he fought for what, with him, was a righteous, if not sacred cause; and so, while he was very far from the ignoble aims of the vulgar soldier, he turned the battle-field into a school of self-discipline, and, sword in hand, read to the world lessons of moderation, peace, and social wisdom.

Yet, though first of his class, the Duke of Wellington was not first among his contemporaries, still less among men. The warrior class is by no means a high class. War, after all, is only a marshalling of brute forces. The very essence of war lies in the reduction of human beings into self-acting machines. Not until the mind of many moves under the impulse of the one master-mind, can war be safely undertaken or successfully carried on. And the movements required in the many are of the most ordinary and superficial kind. The steam-engine seems almost as intelligent in its movements as a well-trained army marching into battle. A certain dexterity of band, an equal tread of foot, passive endurance of attack, or fiery onslaught when the passions are up, —these things taught by systematic training, enforced by severe discipline; and, at the moment of exertion, made easy by imitation or compelled by necessity, are qualities by no means difficult to obtain, to put into play, to direct, to control, or even to exercise. A few months spent in actual warfare have often raised savages to a level with civilised troops, or made raw levies into excellent soldiers.

It is not denied that there is scope for the higher exercises of intellect in the skill with which bodies of troops are quickly concentrated on one spot, or made to bear with united force on one point. There is even a species of genius in that eye of a general which seizes at once, and as if by inspiration, the great bearings of a contest, the great outlines of a country—its military positions, advantages, and disadvantages; and which, on the very eve of battle, disposes and redisposes troops so as to make the attack most effective, and leave to the defence the least possible chance of success. After all, what is called chance has much to do in determining the issue of conflicts; and not seldom fiery ardour and reckless daring accomplish what was impossible to forethought, prudence, and courage. Most true is it that "the battle is not to the strong, nor the race to the swift." The experience of the world justly assigns the palm of victory to Good Fortune. It is not genius that wins victories, so much as caution and hardihood. To that persistence which is so marked a feature in the English character, this nation owes its great victories, whether by land or by sea.

With these facts before us, we cannot declare any conqueror, however ample his renown, a great man of the first class. It is to a higher class of qualities than those which war puts into action, that the greatness of the greatest warriors is to be ascribed. Not for his skill in fighting, but for his pure patriotism and manly self-denial, have men agreed to place Washington at the head of the warrior class. And Wellington's high position in that class he owes mainly to the purity of his motives, the general elevation of his character, and the magnanimity that never needlessly injured a foe, or wantonly spilled a drop of blood. With him, as with all warriors that deserve the epithet of Great, the moral excellence of the man far outshone the fame of the soldier.

The more necessary is it to present these important facts, because, unhappily the career of the great man that has recently fallen in our Israel, displays in the clearest light that military renown is still valued by us very disproportionately to its real deserts. That renown has for its basis and its justification efficiency in the array of material forces. To attack and to defend, and to attack so as to defend, is the peculiar function of the warrior. Setting aside conquest as a wholly indefensible aim, we arrive in our analysis at protection as the soldier's office. Pro-

tection is a worthy task. If you step in to save me from violent hands, you render me a great service, and acquire credit for yourself. But protection merely preserves that which exists. Protection does not improve, does not augment, does not multiply. In itself it is but a negative good. A far higher service is rendered to humanity by those who discover new truths, who bring to light new laws, who make new inventions, who fill the heart of society with new and noble sympathies. Of such actions creation is the essence and inspiration the impulse. It is to its men of original and inventive genius that society owes its greatest advantages and its highest obligations. In the germ of that thought which issued in the steam-engine and the self-acting mule was there involved more good to man than has been bestowed by all the warriors of our race. The great minds of a nation are its great benefactors. The highest merit consists in the lowliest service. Active beneficence among the humble, the despised, the sinful, dignifies while it blesses. To educate is divine, to protect is human, to destroy demoniacal. And if you measure greatness by exertion and self-denial, you will often find it in fuller proportions in poor men's huts, and in nurseries, and in sick chambers, than on the field of battle or in the courts of princes.

Yet the warrior class still stands at the head of this British nation. Not only is it one of its great powers, it is the greatest power of all. As a symbol of the era of violence out of which these ages have come, protection is honoured by us as our highest worldly good. The court bristles with the insignia of the camp. Military deserts are recognised most readily and repaid most liberally. The highest honours the nation has in its gift are lavished on the successful warrior. Our men of science we leave to make their own way. Our men of letters we allow to struggle with poverty and die in neglect. Often do we acknowledge our philanthropists only when their ear has become dull and their eye dim to our tokens of gratitude. But we go before the soldier to greet him in his first victory, and we follow him with warm applause and solid rewards throughout his career. What laurels too costly for his brow! What expressions of gratitude and admiration too intense? We raise him to sit with our princes, we ennoble his relatives, we enrich himself and his descendants. And, as if a successful warrior must be a virtuous citizen and a wise statesman, we surround him with civic honours, and put our national life with all its interests and all its issues into his hands. Success in other walks of life is in each case confined within its own department, but success in war brings universal success. Of old, conquerors became kings, now they are the rulers of kings and proprietors of nations. Inferior in title and in rank, they surpass monarchs in power and wealth. Nor does their supremacy last only while they hold the sword. Coming in triumph from the field of battle, they bring with them a name, whose potency is felt and recognised so long as they live:—

"E'en in their ashes live their wonted fires:"

and the memory of the uncle may revive imperial aspirations, and bestow despotic power on an inglorious nephew. It is a little thing to say, that this homage is undue, and extravagant. There is a more important thing to say; namely, that society in its heights and its depths, is still semi-barbaric. No surer token can society give of its qualities than the honours which it awards. Men in bestowing honours, give what they value most. And the nature of the honour betokens the nature of the merit. What then does England esteem so much as military fame? Why, even our bishops bear military titles, and our churches flaunt with military triumphs. Our language too is full of traces of our martial spirit. Glory signifies success in battle. Triumph denotes a display in which the pride of the victor is fed on insults to the vanquished.

While directly and indirectly we thus load the conqueror with distinctions, we not only invite him forth from the ranks of his fellow-citizens, but encourage and strengthen the warlike spirit with which the world is already too much impregnated. The immediate abolition of war, though desirable, is, we fear, by no means possible. But the abatement of the warlike spirit, and the diminution, or if possible, the utter removal of causes of war, must be objects of desire with every disinterested and right-minded person. Desires, however, that call forth no corresponding action, are nugatory if not discreditable. The aim then of every lover of his species should be to disabuse men's minds of their warlike idolatry. It is the arts of peace that have made this country so great and so powerful. It is by cultivating the arts of peace that we of this generation may transmit our advantages to posterity, and create influences that may multiply and improve those advantages indefinitely. Even for protection, peace has better guarantees than war. An active, industrious, intelligent, rich, and happy people is its own shield and buckler. Such a nation has all the elements of strength as well as greatness. And in the actual and possible collisions of the world, the strong, and the strong only, are safe. Nor must it be forgotten, that the real sources of a nation's strength lie in its mental and moral culture. Athens drove back and discomfited the teeming hordes of Persia, because every Athenian was a man in intellect. The invincible Armada broke to pieces on our shores, because our defenders had souls firm as the rocks which gird the isle. A well-educated people cannot be subdued. Mental superiority gives universal superiority. In their ultimate issues, mental power and moral power hold in their hands the government of the world. The martial supremacy of England, her sway over most distant lands and most powerful sovereigns, is owing not to the force of numbers, not to stalwart frames or brawny sinews, but to character, that character which no defeat can dismay, and no victory dazzle, and no affluence effeminate. So long as our national character remains sound and undegenerate, we shall remain a great and powerful nation. And it is not by the spirit of war, but by education, by justice, by mercy, in a word, by the religion of Jesus Christ, that we shall preserve and enrich the sources of our national greatness, in strengthening, exalting, and ennobling our national character.

But shall we peaceably enjoy the opportunity? Will the present settlement of Europe be allowed to remain? That settlement may justifiably be considered as the result of the deliberate aims and the life-long deeds of the Duke of Wellington. We look upon the Duke as the impersonation of the age that is now passing away. Politically and socially he made it after his own will, and in his own likeness. We do not mean that, in all respects, the age was what he wished it to be. Doubtless, his influence was sometimes modified, sometimes overruled, and sometimes counteracted. Yet, in the main and on the whole, Wellington stamped an image of himself on the immediate past. Victorious at Waterloo, he was irresistible at Vienna; and, considering the materials he had to deal with, he moulded Europe at his pleasure. From the Congress of Sovereigns he passed to the right hand of supreme power in Great Britain, and, seated there, he with an iron hand gave shape to the not easily yielding masses of human and social interests which he undertook to control. While employed in the task he met with opposition, sometimes stern opposition, and often had to adapt his measures to meet and control interests the intervention of which he had not anticipated. Of course he was checked, impeded, even overpowered. He could not give effect to his own will. As a workman he was compelled to submit to insuperable necessities. Out of limestone he could not carve an Apollo Belvidere. Water in his hands would not coalesce with wax, nor would wax retain impressions with the fixedness of granite. Yet, on the whole, he triumphed; and as he triumphed, so he reigned. He himself declared that he had attained everything England could bestow, except the crown; and had he been as ambitious as he was dutiful, possibly, in some crisis, amid the fearful collisions of the last five and thirty years, he might have clutched even the crown. Speculations apart, the Duke was powerful, very powerful—powerful with the monarch—powerful in the legislature—powerful with the church—powerful in the country. Such power went far to make him the real governor of the empire. Conceive the Duke of Wellington in opposition to "the Queen's Government"—when Ireland was on the verge of rebellion—when the peace of England vibrated on the pivot of the Reform Bill—when Chartist commotions filled the land with alarm—when a hungry people clamoured for Free Trade! Nay, let him be not in active opposition, but merely in quiet alienation; let him stand aloof from the Government, and you acquire a truer, as well as more

vivid, idea of his potency. For a quarter of a century that has just elapsed, England *minus* Wellington would have been, and would now be, a very different country from the England that is.

With these explanations we may assume that Wellington is the fabricator of the passing age. As such he is its representative. Every representative embodies an idea. If Wellington is the symbol, legitimacy is the thing symbolised.

The symbol is departed. In funeral pomp it has gone down into the cold and lifeless tomb. National grief has thrown its pall over the remains of the hero, and solemnly conducted them to their final resting place. The sword and the charger have lost their office; the bold, calm, wide-surveying eye is for ever closed; the hand that could cleave a helmet or marshal a battalion rests motionless and still. How is it with the thing symbolized? Why, it has triumphed; it is in the ascendant. The hero of a hundred victories has placed the British throne of a hundred descents on a basis of adamant; not more solid are the granite mountains than is the throne of our beloved Victoria. But the throne of England cannot be taken as a type of thrones in general. The solidity and durableness of that throne may be in part owing to the prowess and the wisdom of him who was its ornament as well as its buttress, and is now its everlasting grief and regret. But broader and deeper are the foundations on which that throne reposes. Its chief support is a nation's respectful love; and that love, genuine, deep, and lasting as it is, springs from a nation's gratitude. Not to the strength of a hero's arm, not to a long line of illustrious ancestors, not to a venerated constitution in Church and State, not to any one of these nor to them altogether, does Queen Victoria owe her position of unquestionable security, so much as to her own wise, benign and patriotic spirit—to her own womanly goodness—to her own motherly heart, which making her deeply solicitous for her people's real good, and impelling her to take every opportunity to secure and advance that good, has enshrined her name in the deep and fond affections of every Englishman's heart, to whatever party, to whatever creed he may belong. Legitimacy? Yes! Queen Victoria's reign *is* legitimate; it exists by the law not of temporary, but everlasting right—the law of "the everlasting Gospel"—the law of justice, equity, and benevolence. Were legitimacy like this universal, our hope of the continued peace of the world would be stronger and brighter than it is; nay hop would become assurance, and we should with tenfold emphasi bless the name of the hero and statesman who left behind to th world such a legacy.

Very unlike this noble reality, however, is the legiti macy which has resulted from Wellington's campaigns an councils, when viewed in their remoter results on the broa field of European politics. True, legitimacy bears sway i Prussia, in Austria, in Russia. Some would point to those coun tries as specially exhibiting and illustrating the triumphs o legitimacy. What! did not innovation put crowns in peril there Did not innovation set all in confusion there? Has not innova tion there tried its forces and experienced its impotency again an again? Its last, which was its most concentrated effort, met wit the most signal failure. All this is true, too true. It is als true that, in regard to the constituent elements of govern ment, legitimacy prevails from the Straits of Gibraltar t the Oural Mountains, one country only excepted. Over tha immense tract of the globe, kings rule and princes de cree what they call justice; the will of individuals is law



NAPOLEON SENDING THE OLD GUARD INTO ACTION AT WATERLOO.

There legitimacy in its worst form of mere hereditariness is al but the sole form of government. There the people exist by th grace and for the good of the sovereigns. There the questio is not, what are a monarch's deserts? but who was his father There the question is, not what is the condition of the people but what is their utmost amount of endurance? how many back to fleece? There the question is, not what ought the governed t receive; but what may it please the governor to bestow? Ther the people are held bound to obey, without being accounte worthy of a voice in the formation of the laws. To the peopl belong duties; rights are the exclusive possession of the sove reigns. The mere accident of birth determines who are th subjects, and who the masters; what the load and whose th whip. On this side of the river you are subject to the qualifie despotism of Prussia; on that side of the river the Austrian eagl claims you for its prey; and further east and north, you are consigned to the mercies of the Russian bear. No matter what your predilections; no matter what your intelligence; no matter what your moral worth; legitimacy, in each case, declares you its serf, and in religion, as well as in politics, exacts the most

rigid conformity to its will. Here you must be a Protestant, there a Catholic, and there a Greek. If you change your latitude and longitude you must change your religion. And if you complain of the necessity of the change, as involving the peril of your soul, you may take such solace as you may find in the reflexion, that a uniform despotism everywhere takes the same care, that is, such care as it may, of your body.

Yes; doubtless, legitimacy of the purest water holds the sceptre over the greater portion of the European continent. But in its very purity is the pledge of its downfall. The age is gone in which the people may pass for nothing. Rank is only a superficial mark. Position is little else than the height of danger. Feudalism has retired before individual culture, and though it may linger like a black cloud in the north-east, the sun of enlightenment moves in that direction, and the cloud will be dissipated. Very certain it is, that the gulf, already broad enough, and deep enough, which exists between the governor and the governed in the greater part of Europe, is daily widening. Why? Your schools, your universities are teaching men everywhere to think, to feel their individual rights and responsibilities; are everywhere raising serfs into men, and making men strong

But there is another consideration which makes us tremble for the preservation of peace. One of the openly-avowed principles of the present ruler of France is "the sovereignty of the people." The precise meaning of the phrase we do not undertake to define. That it is compatible with the supremacy of an individual, facts demonstrate. Equally do facts prove that it may embrace universal suffrage. If interpreted by the historical antecedents on which mainly it professes to rest, and the historical memories which it avows its intention to honour and vindicate, this "sovereignty of the people" is likely to prove no less aggressive than subversive. Certainly ambition and aggrandisement seem to be in its very core. What if it should undertake a crusade against legitimacy? What if the imperial throne of France should become a rallying point for European discontent? What if Louis Napoleon should unfurl the standard of universal revolt? What if the nephew of the uncle that ran away at Waterloo, should, as the grave closes over the ashes of his conqueror, draw the sword long intended to reverse the fortune of that day? These, it must be admitted, are possibilities; and if possibilities they throw on the canvas of the immediate future a very dark and alarming picture.

We have no love of despotism. We have no desire to see the



WALMER CASTLE.

in intellect, comprehensive in vision, and high in aspiration—how then can your cabinets long continue coercive, self-willed, despotic? Why, under restrictions more or less rigid, you allow your professorial chairs to expound the freest principles, to discuss the most disorganising doctrines, to create the finest intellects; after having done so, do you think you can uphold tyranny in your government? You must close your schools or modify your despotism. But you cannot shut out the light. Books are a universal missionary. Railroads, like the sun's rays, carry light throughout the earth. And the human heart beats with the same longings, and owns the same wants in Siberia as in London. The common fuel is everywhere, one spark sets the world in a blaze. All souls are electric, and the wires of communication are even now being laid.

If we contemplated these facts exclusively, these divergencies and chasms; if we regarded only this despotism on the part of the units, and this preparedness for self-government on the part of the myriads, we should feel justified in affirming that the existing legitimacy could not be long-lived; we should find reasons only too many and too strong to apprehend an approaching convulsion, a war of principles, perhaps a conflict more wasting and terrific than has been known since the invasion of the northern barbarians.

tyrannies of the continent durable. But we deprecate a European War. Equally should we weep and wail over the desolation which would be spread, if the conquerors of Algiers were let loose on Europe. We incline to the opinion that England would, not of necessity, be involved in the strife. Her exemption would be an incalculable blessing. Nevertheless, terrible would be the calamity.

However, clear it is that another principle, and a hostile principle, is coming into prominence. Wellington's legitimacy is opposed by the people's sovereignty. In our own country, happily, the nuptials of the two have been solemnised. But on the continent the two, like two giants prepared for the last encounter, frown and gnash their teeth the one on the other. A conflict seems almost inevitable. Even if existing despotisms could be softened down, and be brought to spread fostering wings over the people, no power would hence be obtained to charm away the threatening aspect of France. To the Napoleon dynasty legitimacy is the thinnest and most transparent shadow. The representative of that dynasty has no basis except in "the sovereignty of the people." The church? A merely transcient cover. The army? They want a watchword. What so good as "the sovereignty of the people?" That cry

might even be employed to set upright again the pedestal of literature, and bring back to Paris its scattered worshippers. That cry might be turned to account in removing the gag from the daily press. That cry might serve to rally around the new Emperor the sympathies and the persons of the populace of France. Aye, Communism might bend the knee at that cry, and enter heartily into its service. "The sovereignty of the people" is the very idol of the Communists of Europe. The words only need to be pronounced with a voice of power in order to call forth echoes in every continental land. Communism slumbers, and is not dead.

Louis Napoleon, then, if he read his horoscope aright, seems marked out as the destined champion of a power adverse to legitimacy. He is not insensible to the demands of his position. With his own lips has he interpreted the oracle, and appearances declare that the weird finger is the more gladly beheld, because over the grave of Wellington he sees it point to retribution. He has given himself out as the vindicator of his uncle's fame, as if such vindication was the absorbing passion of his soul, and the fixed purpose of his life. Of the "Napoleonic ideas" which he has developed and expounded, this is the central one. Whether that idea comprises war with Britain or not—whether, as it is practically unfolded, it shall prove to comprehend war with Britain—certain it is that it does imply war against European legitimacy. The coalitions and sacrifices of European legitimacy overthrew the uncle—by the nephew an effort will be made to avenge the insult and the injury on European legitimacy. No; think not, ye representatives of legitimacy from foreign lands, who bend in veneration and gratitude over the vault that receives the lifeless form of the hero of Waterloo—think not that, as you break the baton of that hero on his tomb, you behold a symbol of your triumph. Think not, ye aged warriors who fought by that hero's side on the battle-field of Europe, that you yourselves may go to your graves with the assurance, that the cause for which you perilled your lives, and in which you won your laurels, is successfully pleaded and finally gained. There is a court of appeal. The verdict is questioned. Again is issue joined. The last judgment may be adverse to your wishes.

If there is truth in the tenor of these remarks, we are required to qualify our veneration for the great warrior whose obsequies we celebrate. The settlement which Wellington brought about was a settlement for a day. Such must be the nature of every settlement which is effected by the sword. The sword is but violence with a glittering exterior; the sword is only force with a sharpened blade. Injury it may add to injury; right is beyond its sphere. The sword may punish, it cannot adjudicate. Vengeance is its work, not adjustment. The sword-bearer, then, can never rise higher than a second-rate man, and thus the achievements of Wellington go with him down into his grave. The Treaty of Vienna has already become food for the worms, not less than the nerveless hand which signed it on behalf of England. Yes, the features imprinted by the Duke of Wellington on the present age are even now vanishing as if they had been stamped on water. The legitimacy for which he fought is found to consist of "dissolving views." The purposes and the achievements of the united monarchs of Europe, which in their own fond imaginations swelled into proportions so grand, and went forward into consequences so distant and imposing, are already found to be mere "chambers of imagery;" illusions thin as air; visions of the night which vanish at the dawn of day. If so, the Duke of Wellington did not possess a wide reach of thought; had little or no prophetic sight; was destitute of that "large discourse" which, looking behind and before, above and below, beholds events in their springs, and legislates for futurity. No; it was not on the Pisgah eminence of Genius that he stood, but on the plain of Common Sense; there standing, he dealt with common things in such a superior manner as to win the game of actual life, and command opulence, rank, and respect.

The picture we have painted may appear to want relief. We are not an artist, and, therefore, disown the obligations of art. Our office is to speak the truth, not pronounce a panegyric. But there is a feature which must be added to the portrait—a feature radiant with hope, albeit, we are only partially indebted for it to the distinguished subject of this disquisition. We allude to Free Trade. It must not be forgotten that Free Trade was born within the life-time of the Duke of Wellington. It must not be unsaid that Free Trade will not be buried with his remains. Here is a social power as mighty as it is new. Here is a social power that is no less rapidly than quietly making progress over the whole civilised earth. The genius of commerce set free from bonds, sheds down its benedictions on all countries with impartial hands. Wherever it goes, it binds and cements men and nations together in the strong bonds of common interests, and reciprocated benefits; national jealousies it charms away, national strifes it composes, hostile collisions it bids to cease; requiring unrestricted intercourse and the freest and widest exchange it frowns on war, it robs war of its resources, and gives its whole collected energy to peace. And so firm is the foothold which this benignant power has now obtained on the earth, so broad is the basis on which it has founded its empire, that not unreasonably may it be set forth as the great antagonist power to that illegitimate legitimacy which seeks to usurp the permanent dominion of most European states. Happy for the cause of civilisation that such a power is daily rising into due ascendancy. Hostile to nothing that is really good for mankind, it may even exist and act in harmony with the proper "sovereignty of the people." Nay, that sovereignty it cannot fail to promote, for as the wealth of nations is only the collected products of individual labour, skill, and enterprise, so every free mind the more there is in the world, every additional hand unmanacled, every foot released from fetters, the larger the field of its operation, the more copious are its fruits, the more extended, certain, and durable are its triumphs. And unrecognised though this power may be among the gewgaws of heraldry; frowned on though it was at its birth by mitres, coronets, and crowns; hindered, as it now is, in its goings forth by imaginary interests and prescriptive rights nevertheless, strong in the undecaying vigour of perpetual youth, and, like the fabled phœnix horn again and again, in the succession of ages, it will not only continue to dispense blessings to the nations, but will visit the world ever more widely, and with fuller hands and ampler gifts, as time passes on, and warriors and potentates are gathered to their fathers.

After the mass of information which has been showered upon the public in newspapers, pamphlets, reviews, lives, and anecdote books, we have thought it unnecessary to give any lengthened sketch of the great deeds of which the career of Wellington was made up. A few of the incidents connected with his last and crowning achievements we have thought worthy of illustration. The "stern child of destiny," whose star was forced to pale its fires before the steadier flame which Wellington's glories shed on the eyes of the world, appears, in our engraving (p. 329), in his chamber at Fontainebleau, after his return from Elba,—absorbed in thought, doubtless regretting the past and fearing the future. There was enough in the occurrences of the few preceding days to fill the heart of a stone with pride. The heir of thirty generations of kings had fled from his palace like a thief in the night, and abandoned a mighty kingdom at the mere sound of his name. The sight of his grey surtout filled veteran soldiers and war-worn generals with frantic enthusiasm. But what availed all this against the terrible fact that a world was in arms against him, and that, as traitor to public law, he was already doomed to public vengeance by the great chiefs of European diplomacy. The grand old palace might well look gloomy, and the brow of the emperor great and feared though he was, might well seem wrinkled with care.

In contrast to this scene of melancholy grandeur, is the quiet retreat in which the old English general ended his days, close to the shore. The sea, which so often wafted him to his triumphs, beat his requiem. Calm and deep like its waters, as the harvest moon shone on them, was the whole current of his life, in his latter days; but, unlike it, when his strength was roused, it was ever to save and uphold.

Our engraving (p. 328) represents the charge of Lord E. Somerset's brigade of heavy cavalry, consisting of the Life Guards, the Royal Horse Guards, and the First Dragoon Guards. It is thus described in a recently published biography:—

"These splendid regiments absolutely rode down and rode over their comparatively feeble opponents; horses and men fell at their

shock; the cuirassiers, whose breast-plates had glittered in so many battles and victories, disappeared from the world as a corps, and became a thing that had been; they were completely cut up. After this almost total destruction of his cavalry, and after the frightful reduction of his columns of infantry, Buonaparte was, if not as good as beaten, at the least put into a condition from which the duke could have had nothing to apprehend, even though no Prussians had come up. Except the guards, every part of the French army had been engaged, repulsed, and frightfully thinned. Not a point of the British position had been carried. Not a single square had been broken; and, though our loss in killed and wounded had been great, some of the duke's troops had not yet been engaged at all, and all were full of heart and of confidence in their great leader."

Buonaparte had invited Ney to dine with him that evening at Brussels; and at six o'clock he is *said* to have remarked, that they would yet arrive there in good time. This is merely a *say:* at 6 P.M., and at no part of the day, did they see a chance of getting to Brussels.

General Clausewitz may be taken as a competent, and as an unprejudiced authority as to the condition in which the two contending armies stood when the Prussians came up. Clausewitz was chief of the staff to the third corps of the Prussian army. If he had prejudices, they were not likely to be in favour of Wellington and against Blucher. He knocks on the head the nonsense that has been circulated about the duke having exhausted his reserves in the action; and he enumerates the tenth British brigade, the whole division of Chassé, and the cavalry of Collaert, as having been little or not at all engaged; and to these he might have added two entire brigades of light cavalry. Moreover, General Clausewitz expresses a positive opinion, that, even had the whole of Grouchy's force come up at Waterloo (which it could not do, and which it was prevented from doing by Buonaparte's lamentable mistake about Blucher, and by the positive orders he had himself given to Grouchy), the Duke of Wellington could have had nothing to fear pending Blucher's march and arrival. Had "Marshal Forwards" not come up when he did, the duke would have kept his own; and the last charges of the French, if made at all, would have been repulsed, as all their preceding attacks had been. But had the French retreated, there could have been no pursuit; and if Blucher had not been at hand, there might have been a renewal of the combat on the morrow.

Lord E. Somerset's heavy brigade of cavalry having made its annihilating charge, there was a pause in the battle; and it was about seven o'clock in the evening when artillery was heard at a distance, and a staff officer reported to the duke that the head of a Prussian column was already coming in sight. Very shortly after, Bulow's corps, advancing upon La Belle Alliance, began to engage the French right. And now was the short agony for Buonaparte. He called forward his guard, which he had kept in reserve for a last desperate effort. He led it forward, in person, to the foot of our position; but then he turned aside, and took shelter behind some swelling ground. The guard moved onward, looking on Buonaparte as they passed him. "*Morituri te salutant!*" He ought to have gone on with it, and to have died with it; but he neither headed it nor followed it; nor did he, during any part of this day, expose his person freely in the mêlée of battle, as he had done in the spring of 1814, in the battles of Craonne, Arcis-sur-Aube, and in other affairs on French ground. Ney went on with that great forlorn hope, and, unluckily for himself, was not killed. The guard advanced in two massy columns, leaving only four battalions of the old guard in reserve, near to the sheltered spot where Buonaparte sat on his horse, sallow, rigid, and fixed, like a mummy. The guards moved resolutely on, with supported arms, under a destructive fire from our position. They were met by General Maitland's brigade of English guards, and General Adam's brigade, which were rapidly moved from the right by the Duke of Wellington in person, who formed them four deep, and flanked their line with artillery. That the duke, on first moving them from some cover under which they had been screened, shouted out, "Up! Guards, and at them!" is now recognised as a fable. His Grace never did anything theatrically, and never used any such language to his troops. An aide-de-camp gave the order in the usual quiet manner; the officers in command of our guards obeyed the order, under the eye of their great chief, and the duke advanced with the guards over the brow of the low hill, and then stood to meet the last charge. When within fifty yards from the line of the English guards, the French guards attempted to deploy; but the close fire upon them was too terrible; their flanks were enveloped, they got mixed together in a confused mass, and in that condition they were slaughtered, broken, and driven down the slope of the hill. There was no more fighting; that Grand Army of Buonaparte—the last of all, and the most desperate of all—never again stood, nor attempted to rally: all the rest of the work was headlong, unresisted pursuit; slaughter of fugitives; who had entirely lost their military formations; and capture of prisoners, artillery, and spoils. The army was destroyed, as an army, before the pursuit began. If it had not been so, the Prussians could not possibly have found the pursuit such easy work. In flying, Buonaparte and his guards left about 150 pieces of cannon in the hands of the English. Before that flight began, Blucher had been for a time hotly engaged at Planchenois. At a farm-house, called "Maison Rouge," or "Maison du Roi," at a short distance behind Planchenois and the farm of La Belle Alliance, the Duke and the Marshal met, and Blucher, in the manner of the continent, embraced and hugged his victorious partner. Here Wellington gave orders for the halt and bivouack of his own fatigued troops, and handed over the task of further pursuit to the Prussians. Blucher swore that he would follow up the French with his last horse, and his last man. He started off immediately with two Prussian corps, who began the chase with the encouragement of three cheers from the English army.

"'The guard dies, but does not surrender!' This was a self-flattering fiction which the French afterwards recorded in prose and rhyme, in paintings, engravings, and sculptures, and in all manner of ways. But these flying French guards really surrendered in bands, and cried for quarter. Close to Genappe, Blucher captured sixty guns belonging to the said imperial guard, together with carriages, baggage, &c., belonging to Bonaparte himself. The moon had now risen, and in broad moonlight the Prussians kept up the chase, the French abandoning all they had, and scarcely attempting to stop anywhere until they got within the lines of their own frontier fortresses, from which they had issued with so much pride and confidence only five days before. The high-road, says General Gneisenau, resembled the sea-shore after some great shipwreck—it was covered with cannon, caissons, carriages, baggage, arms, and wreck of every description."

The immediate result of the battle of Waterloo was, as is well known, the utter and irretrievable overthrow of the French empire, and the restoration of the Bourbons. For many days after that fatal field the hosts of the allied armies poured into Paris in one unbroken line, amidst the acclamations of the most fickle population on earth. Those wild tribes from the banks of the Don, beneath whose remorseless swords so many of the best and bravest of France had expiated the rash ambition of their chief, were hailed as saviours and deliverers by the same bourgeoisie which now calls the heir and nephew of the Emperor, the "Messiah of the Second of December." The white flag, which no Frenchman a year before had looked on as aught else than the emblem of a worn-out and brutal tyranny, which had no foundation in reason, and which was then abandoned even by traditional glory—the last friend of great races, was hoisted with merry peals upon the steeples, by the priests of the same church which now claims for the bitterest opponent of the line of the ancient kings, the "gratitude of God." Into the halls and palaces which, thirty years before had run with the noblest blood of the old noblesse, where republican generals had lounged, and from which a Corsican adventurer had issued laws to rule Europe, the Bourbons entered once more, and the regime of imbecility was restored; the soft whispers of the *petits maîtres* succeeded to the hoarse laugh of soldiers of fortune, and "*La victoire est à nous,*" was hushed to make way for "*Vive Henri Quatre,*" and "*Charmante Gabrielle.*" The dethroned Emperor had, in the meantime, fled in dismay to the coast, amidst the threats and execrations of those whom he had made childless and fatherless, but who, with unexampled infatuation, had, up to the moment of his downfall,



CHARGE OF LORD E. SOMERSET'S HEAVY BRIGADE AT WATERLOO, AND TOTAL ROUT OF THE FRENCH CAVALRY.

hailed him with acclamation. He sought refuge on board an English vessel, but only found a prison. In a few days afterwards he took his last look at France across the heavy rolling billows of the Bay of Biscay, with the flag which it had been the ambition of his life to subdue, waving proudly above his head. The world knows his fate. A few years of peevish exile—quarrelling with his keepers—quarrelling with his servants—discontented with himself, and he upon whom the eyes of the whole globe had for twenty years been fixed in fear, hatred, or admiration, passed away without leaving behind any other relic of his greatness than the empty glory of a name.

His conqueror, on the other hand, returned to receive the smiles and honours of the aristocracy, whose interests he had sternly defended, and the applause of the masses, whose imaginations had been impressed by the splendour of his victories, and the force of his character. His private life was marked by a thousand winning graces, by an unostentatious charity, an urbanity of demeanour and devotion to the common amusements of the fashionable world, which, instead of waning, seemed to wax with his age. No man was more popular with ladies and children, than this hero of a hundred hard fought fields, and no better proof than this can be given of the goodness of his heart. Many men who have played wondrous parts in the world's history have, towards the close of life, lost the spring and energy which in earlier days made them feared and admired, and have become querulous cynics or drivelling devotees; but it was one of the most glorious features in Wellington's career, that his mind retained its balance and elasticity to the last, so that but for the faltering step, the rounded shoulders, and the grey hair, there would have been little difference between the Wellesley of Rolica, and the Wellington of the House of Lords. Many a little English heart, whose owner knew but little of his wars or his diplomacy, his battles of giants, and indomitable energy when great destinies were trembling in the scale, is to-day sad and sorrowful, because it misses the kindly beam of his eye, the cheerful tones of his voice, the pretty tale, and the soothing touch.



NAPOLEON AT FONTAINEBLEAU, AFTER HIS RETURN FROM ELBA.

A SATURDAY NIGHT OVER THE WATER.

In the "grand solitude of woods and rocks," there are fine inspirations. Emerson says, "In the woods, a man casts off his years as a snake his slough, and at what period soever of life, is always a child. In the woods is perpetual youth. In the woods we return to reason and faith. In the wilderness I find something more dear and connate than in streets or villages." And yet, believe me, there is a poetry, wild and wailing often, yet, also, often deep, and sweet, and lovely in the life of the great city; even in the fierce roaring sin of this vast wilderness of men, there is an awful music, and rags and wretchedness plead with the heart in plaintive suggestions.

Right to the heart of us speaks the humanity which here unveils its myriad aspects. Here we have nobleness and vileness; loud farce and silent tragedy; mirth and tears; mockery and woe; the struggle of the hero, the apathy of the slave. The eternal problem of the world is here before us with all its intricate difficulties. This other world, this second nature speaks to us, uttering to the ear that has skill to divide the confused mass of living voices, the strangest harmonies, hopes, and aspirations. Beneath the surface-waves of this ocean of life, strong currents set, which are bearing us onwards, and which we must plunge to ascertain, for here the winds and tides continually conflict. Here we have pictures both brighter and darker than our artists draw, learning which our studies and libraries do not furnish. Here no mimic deludes with a show. The people have no conventional masks. All is real, soft or stern, sad or joyous. We are face to face with unmatched beauty, terror, and sadness. The pæan and the dirge incessantly resound, the battle —the triumph—the defeat. Here is morning and noontide—evening and night. What eyes will open on this living, loving, hating, wrestling, fighting, caressing panorama! What ears will listen to the mingled music of this vast organ, whose stops are of the human heart, —to this wondrous *vox humana!* Now the silver pipe of peace, now the harp of love, now the psalm of worship. Again, the thunder of fierce strife, the low wail of sorrow, the shrill shriek of agonies, the deep growl of discontent, the thin hiss of malice. Truly, there is poetry, grotesque and grand, even in the crime and vice of these millions, in their disregarded life, their toil, their weariness, and squalid misery. Brighter scenes of hope and faith there are, bursting like sunbeams through a stormy sky. Happy, lowly homes; sturdy honest hearts, with strong throbs of genuine love in them. Gentle deeds of kindness done by rough hands, the boundless charity of those who themselves know what it is to want. Here is the kindness that gives not grudged pittance from a plenteous store, but freely from its own scarcity; the true-hearted brotherhood, the blessed generosity of the poor to the very poor. Here we find the cheerful endurance that rebels not, nor repines, but gilds a sorry lot with the sunshine of its bright spirit, and makes barrenness seem verdant. Go forth on a Saturday night, pass from our wealthier quarters into poorer regions, into transpontine crowds. The mighty alchemy of toil has paused, its transmuting processes are closed. The streets are thronged with a sauntering multitude of both sexes. The shops are decked in all their bravery of goods and labels, and their gaslights make the streets seem lit as with some vast conflagration. Enormous piles of provisions line the shopboards and the doorposts. The butchers' shops groan with innumerable carcasses, the burly blue-coated sellers are jesting and chaffering with voluble-tongued women; at your elbow, a miniature butcher stuns your ear with the shrill cry of "Wha-dye-buy? wha-dye-buy?" with an incredible prolongation and rapidity of utterance. Every kind of human voice, from the stentorian costermonger to the feeble whisper of the old blind woman who sells boot-laces, distracts your hearing. There a brass band of three brays out spasmodic discord in front of a new baker's shop. Here the assiduous and servile old clothesman solicits your patronage. Now you are stopped and pushed into the road by the crowd that is crushing in and crushing out of this green-grocer's. What sacks of potatoes, piles of cabbages, heaps of apples, hampers of plums, mountains of greens! The chatter and clatter, and squeezing of the little women with the big baskets, is overwhelming. It is almost miraculous how the shopkeepers manage to get through their business. At the door of this unsavoury cookshop, the ragged, stunted urchins stand, stuffing their mouths with pennyworths of suspicious-looking pudding. Inside, in those cramped boxes, men in smock-frocks and greasy caps, in flannel jackets and fustian, are enjoying, what to them is the week's one luxurious meal. At the corner of the street, brilliant with plate-glass, polished mahogany, bright brass-work, mirrors, gilding, and chandeliers, with clean, active, well-dressed young men, and over-dressed, smart young women behind the counter, stands the public-house, thronged to its very door with a noisy crowd, smoking and drinking—setting themselves with beer and gin—for Saturday nights are the saturnalia of the intemperate. How large and splendid an establishment is maintained by these poor men's ill-spared pence! The barbers' shops are full of men, with lathered chins and ultra serious faces, undergoing the weekly operation of shaving. Here is one foppish shaver, in the acmé of vexation. He has, evidently, at some time offended one or other of those half-dozen coal-heavers; to revenge which, they come with their thick week's beard, well rubbed in with coal-dust, and are enjoying with grim humour the vain attempts which the young gentleman is making to denude one of their companions with razors, the edge of which turns at every cut, and who has the prospect of five more like the one under his hands. Slowly, very slowly, we make our way through this crowded mass. Great careless men, with swinging arms and massive boots tread on our toes. Fussy, bustling women poke their baskets into our ribs. Men, with sacks of coal on their backs, rub against us and make their mark as they pass. Hustled and begrimed as people are in such a crowd, all is good-nature, and even pain is borne with a jest. Even our friend there, who has just had half the nap burnt off his hat, and his hair and whiskers singed by a butcher's gaspipe, which belches out flame like a fiery dragon, takes it all laughingly, and does not mean any malice in the oath he utters as he spars up to the offending gas. And now we get clear of the crowd into a broader and quieter street. The clean, comfortable artizan walks by us, with his wife hanging on his arm with her pale anxious face, calculating, painfully, how to dispense the earnings of those hard hands, for there are many little ones at home, besides the laughing, crowing, rosy fellow who rests on the other brawny arm, as though but a feather's weight, and pulls his father's whiskers with infinite glee, whilst the strong toiler, in the pride and love of his paternal heart, is more truly ennobled than by heraldic blazonry. Many things we see which may be spoken of at another time, for here is an unrefusable invitation, "Walk in, walk in, an entire change of performance this evening, for a penny. Just going to begin, no waiting, if you will please to walk in, the cheapest and best entertainment, the wonderful dogs and monkeys, and a variety of singing and dancing, for one penny each." Boys and girls are flowing in past the siren showman, with the gilt chain-cable in his waistcoat-pocket. We are not Ulysses, we are tied to no preventive mast. As to an opera of rarest splendour and merit, these eager-eyed children hasten with shout, and jest, and song, through the long, wide hall. There is a natural curiosity which makes people like to go with crowds. We want to go to see what it is they go to see.

A placard, with drunken-looking letters standing up or sloping down quite independently of each other, admonishes us to "pay here for dogs and monkeys." Inside the little pigeon-hole, a weary-looking woman with a mangy boa round her neck, sits at the receipt of pennies for dogs and monkeys. Which class of animals shall we be considered to belong to? *N'importe.* There's the penny to you, madam. Down through this imposing vestibule to the dismal, dilapidated, so-called theatre, with its white-washed, blue-washed, red-washed, and unwashed walls—its close mildewy smell, like a lock-up cellar, where old clothes are stowed; its tawdry daubs of scenery, and stage about ten feet long by six feet wide. One sad, old fiddler sits on a stool in a corner, mechanically scraping out a feeble accompaniment to the performance. Sixty or seventy boys, from ten to fourteen years of age, a few girls in small smashed bonnets and rusty dark little shawls, an innocent brown-faced labourer, with blue smock-frock, glazed hat, and black pipe, several women who seem half ashamed, half impudent, and a crying baby compose

the audience. The performer, at least, the only human one, is a Frenchman, who introduces a number of poodle dogs, with heads like small white mops. They perform many fantastic tricks, to the vast delight of the juveniles. They dance with a grotesque gravity on their hind legs. They jump through hoops—single hoops, double hoops, and crossed hoops; climb up and down ladders with ludicrous circumspection; balance on the back of a chair; run a race with monkeys as jockeys; roll a barrel along the stage, and several feats of this character. Could we exclude from our consideration the late hours, bad air, company and loose habits engendered by attendance on such places as this, we should have small occasion to be offended with this entertainment. These canine acrobats are sufficiently curious, even as instances of docility, ingenuity, and patience, however perverted and misapplied. It is even well that any harmless amusement should be put within the reach of these children, that they should have the opportunity of receiving pleasure without the contamination of vice in the exhibition.

But this performance being over in less than an hour, we turn to another passage, where a stronger stream of these "Young Englanders" is hurrying onwards. This is the singing and dancing theatre. A large, bare, tawdry place, as rough as an election-hustings; the pit, ranged thick with black, greasy-looking forms; the boxes, like disguised sheep-pens; the conical ceiling appearing as if we were under an enormous extinguisher that might be let down on us and put us all out. The whole adorned with various glaring room-papers, indiscriminate remnants of upholstery, meant for decorations, but now smoky-looking and soiled. Here they come rushing in, scrambling over the seats, shouting and screaming, pushing each other head over heels. Boys of all shapes and sizes, in all manner of describable and indescribable garments. Some washed, some by no means washed—do not look as if they ever were washed. Slatternly little girls, mad with excitement and mischief, romping, pinching, screaming. Then in an instant demure as cats, sitting bolt upright in a cluster, in another moment, tussling and shrieking. In they come by scores, by hundreds—quite three hundred of them, sunken-eyed, hollow-cheeked, down-looking, colourless, and unjoyous, from ten to fifteen years of age—many of them with short pipes in their mouths;—they think it is manly to smoke. One expression seems to have possession of all these pallid, pinched-up faces; a dull, cold, weary look; the lamp of the soul seems to be gone out—forlorn, bereft, abandoned; young ruins, with nothing venerable, in which there has been no love, no worship, disfurnished temples, with "Ichabod" on their foreheads. One saddest possible appearance possesses them, they seem to have lost the sentiment of shame, their cheeks could crimson with no charming bashfulness, the flush of modesty and innocence could never bloom on their countenances; alas, for the hopelessness of the young heart, whence the sense of shame has been trampled out by toil, and coarseness, and poverty, with its strange teachings, its bad company, and its searing influence! Better they had never been born. We blush, because they cannot blush; in our eyes the dew of penitence is rising, by reason that it can never moisten theirs. When will we listen to the cry of this vast orphanage, and place the strong arm of society between each single soul and compulsory degradation? They range themselves in compact rows; such as are not smoking, are whistling loud and shrill as a crowd of locomotives in a state of consternation. They shout, they curse, they quarrel, they fight a little, they present a complete anarchy, subdued by force—the tyranny of force predominates here. These half-dozen bull-necked youths, with flattened noses, cropped hair, loose jackets, and close skull-caps, precipitate themselves through the centre of the crowd of youngsters, whom they part, as a swimmer does the water before him, and usurp the foremost seats with utter indifference to the remonstrances of the displeased.

The musical performers, who have been lazily looking over the barrier between them and the audience, at length scramble on their rickety stools, they are two men and a boy, with cornet, harp, and violin, and commence playing, it is to be supposed, for it is not possible to hear. By and bye, an uncomfortable-looking young man with tape checks all over him and a calico necktie, as large as a pillow, comes forth from an unmanageable side door, which seems half ashamed to let him out, and incontinently perpetrates a song about "Lord Lovel." The only comic effects of which are his slapping his hat down on the back of his head, and making that use of his coat-sleeve which belongs to a pocket-handkerchief. Stormily encored is he; and his next song is a descent lower than vulgarity. Then a young lady in conventional short petticoats and bodice, sings a sentimental song—encored of course. Poor creature, how wearily her painted face wears that sickly stereotyped smile; how glad she seems to be to make her retiring courtesy. She seems to shrink away in conscious shame. More singing by males and females, and songs such as no ears should listen to, for although not absolutely immoral or indecent in expression, they are so in allusions, too readily understood, and vociferously applauded. A disjointed-looking man, with a bad cold in his head, growls out a comic song, of which, the best that can be said is, that it was almost unintelligible. Another young lady, dressed to pattern, sings, "Who'll have me?" whereupon Babel breaks loose: "I will," shout a score or two of lads. "Would'n't have you at no price," bawls out another. "Here's tup-pence for ye," yells a young urchin, jumping on his seat and flourishing the coppers. Then the eternal sailor dances the unfailing hornpipe; compared to which, Taglioni, Ellsler, Cerito, would be tame to these on-lookers. This nautical gentleman varies the usual routine by playing the fiddle to his own dancing—which makes him very fierce and red in the face before he has finished. More songs—with the usual seasoning of covert impropriety. A miserable, incomprehensible sort of ballet, or mixed pantomimic hash of nonsense and wry faces closes the performance. The audience, pent up in this pestiferous heat, smoke, and stench, for an hour and a half, rushes rudely and noisily out to give room to another of a similar description.

Sad recruiting service this for the army of vagabonds, a hundred thousand strong, who infest and terrify our civil citizens. They are virtual orphans—fatherless and motherless they are indeed, for no office of parentage is performed to them, no care, no cleanliness, no comfort, no tendance, no teachings of love or authority. Drifting weeds—waifs and strays—wrecks and rubbish flung overboard, are they. What can be done with them, done for them, they are no longer children, they have had no boyhood—acute, precocious, active, unscrupulous—they have the vices of bad men in their young hearts. We cannot leave them to themselves, for if we do, they will not leave us alone to ourselves some day. Nemesis gathers up what society rejects. What losses do we not incur? What developments of use and and beauty, and genius go slumbering neglected to the graves, where some day these poor children will hide their vices and their sorrows? How many honoured names do we thus permit to slip from the muster-roll of our race? They are not irredeemable; for proof of this, we may refer to the noble efforts and success of the manager of Messrs. Price and Co's. patent candle manufactory, at Lambeth, with the boys in their employ. It is easy to say, "Educate them;" but will they submit to be educated? Take them to Helicon, will they drink of its waters? With the constant weight of toil and hunger, and unhealthy homes and vicious examples dragging them downwards, how can they soar? There is a counter-agent to our best exertions in these excitements which are their pleasures, strong enough to frustrate our plans for their amelioration. The low theatre, the singing saloon, the "penny gaff," impart a feverish criminal bent to their imagination, and force their passions to hot-house luxuriance. They must be *amused*—healthily, fitly, without vicious connection, in reasonable hours, in suitable places. We must not leave them to seek their pleasures in these low haunts of degradation. The school must be supplemented by the playground, for they are not machines which we can set going and stop as we choose. They have desires and will, they have a thirst common to all human beings, the thirst for pleasurable emotions, and it were a noble office to minister to this inevitable want, so that it might help and not hinder their moral growth, that their joys might be as a gentle dew to refresh and feed the bloom of their hearts, and not the breath of a blight on the fairness and purity which yet linger in their young natures. "These things should ye do, and not leave the others undone."

THE FAMILIES OF PLANTS.

POLEMONICÆ,—THE GREEK VALERIAN TRIBE.

Corolla regular, rarely irregular, five-lobed. Stamens five, inserted on the middle of the tube of the corolla, and alternate with

Fig. 247.



Cobœa Scandens.

its segments. Ovarium free, three-celled or one-celled. Seeds few or numerous. Embryo straight, in the axis of a horny albumen.

Fig. 248.



Polemonium Vulgare.

Unknown in tropical countries, these plants are very abundant n North and South America, in temperate latitudes, particularly on the north-west side. In Europe and Asia they are uncommon. Twelve species are European, and four are British.

V. officinalis, the officinal, or great wild valerian, is a native of Europe, and grows abundantly by the sides of rivers, in ditches,

Fig. 249.



Hydrophyllum Virginicum.

and in moist woods, in Great Britain. The root, which is directed by the Colleges of Physicians to be constantly kept in the apothecaries' shops, and hence, with other plants, called *officinal*, has a

Fig. 250.



Anchusa Officinalis.

very strong smell, which is dependent on a volatile oil. It is used in medicine in the form of an infusion, decoction, or tincture, as a nervous stimulant and anti-spasmodic. *V. rubra*, or

red valerian, is occasionally found wild in Britain, and is cultivated in gardens, as well as many other species (fig. 247), on account of its elegant flowers. Among these is the Greek valerian, or Jacob's ladder, a British perennial, growing in

Fig. 251.



1. Petunia Meleagris 2. Petunia Van Volxem.

bushy places in the north of England and south of Scotland. We give another specimen of this family in fig. 248.

HYDROPHYLLEÆ.—THE WATER-LEAF TRIBE.

Corolla regular, or nearly so, five-lobed. Stamens alternate with the lobes of the corolla. Ovarium one-celled; ovules definite or indefinite, suspended. Fruit capsular, one-celled. Seeds definite or indefinite. Embryo in a cartilaginous albumen.

These are American herbaceous plants. They are found either in the north, or among the most southern of the southern provinces; but are not known beyond that continent. One of these appears in fig. 249.

BORAGINEÆ.—THE BORAGE TRIBE.

Corolla hypogynous, monopetalous. Stamens five, inserted on the tube of the corolla, alternate with the divisions. Carpels four. Albumen very thin, fleshy, or wanting.

Natives principally of the temperate countries of the northern hemisphere, these plants are extremely abundant in all the southern parts of Europe, the Levant, and middle Asia; but less frequent as the arctic circle is approached; and almost entirely disappearing within the tropics.

This well-defined and interesting family receives its name from the garden borage, to which several of its members are related by many obvious and pleasing ties of affinity. The flower is one of exquisite finish, and a more lovely colour is not to be found within the range of vegetable tints, than the dye of its blossom.

This family was designated by Ray and Linnæus *asperifoliæ*, or rough-leaved plants; and perhaps a more appropriate term could not have been invented. One of its members is the heliotrope; its most striking character consists in the spikes of blue flowers bent back spirally, which, as the ancients imagined, always turned to meet the sun.

Another is described by Mant, as one of the greatest ornaments of June.

——"With mingled hue,
Of purple, blue, and brilliant red,
Though spurned beneath the passing tread,
Prickly and harsh, with tints that pass
The garden pride—the viper grass."

Such is the viper's bugloss, which is found on heaths and by road-sides, and may always be known by its bright flowers, rough foliage, and spotted stem. But, one of the most curious, perhaps, of the whole family, is the groundsell, the seeds of which have a beautiful polish and a pearly whiteness, and are nearly as hard as a piece of marble. It was from their appearance that collectors of simples, before science had brought men to reason more correctly, conjectured that this plant was adapted to remove calcareous concretions from the human body. Many of these plants have roots, which yield a red dye; particularly the *anchusa tinctoria*, or alkanet. The *anchusa officinalis* (fig. 250), is used for medical purposes.

SOLANEÆ.—THE NIGHTSHADE TRIBE.

Corolla with the limb five, rarely four-cleft; regular, or somewhat unequal. Stamens inserted on the corolla, alternate with its segments. Ovarium, two or more celled, rarely one-celled; ovules usually indefinite. Fruit capsular or baccate. Embryo more or less curved, lying in a fleshy albumen.

These plants are natives of most parts of the world without the arctic and antarctic circles, especially within the tropics, in which the mass of the order exists (fig. 251).

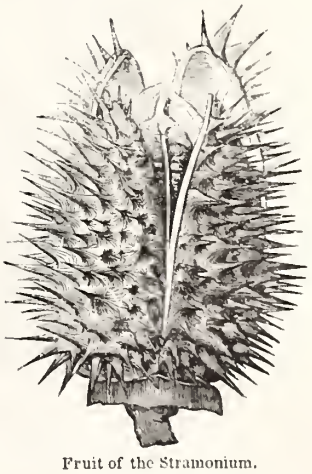
The potato is the root, or rather the subterranean stem of the *solanum tuberosum*, which may properly stand as the head and representative of the entire family. One of its members is the henbane (*hyoscyamus niger*), a British biennial herb, found in waste ground, and loose dry soil. The expressed juice of the leaves evaporated to the consistency of extract, has long been used as a sedative or narcotic. When taken in any considerable quantity, it proves quickly fatal to man, and to most brute animals. Swine are said to eat it with impunity. Of the nightshade there is a great variety. The woody nightshade (*S. dulcamara*), and common, or garden nightshade (*S. nigrum*), are British plants, the first growing in hedges and among bushes, and the latter in gardens, fields, and waste places. The root and leaves of the former are narcotic, and are applied to various medicinal uses. The berries are poisonous.

Fig. 252.



Mandragora Officinalis.

Fig. 253.



Fruit of the Stramonium.

There are several species of the genus *mandragora*, one of which grows in Switzerland, one in the south of Europe, and one in the Levant. In medicine they are narcotics (fig. 252).

The *stramonium*, or thorn-apple (fig. 253), originally a native of America, is now a frequent weed on dunghills, and in culti-

vated ground of our own country. Its qualities, particularly its seeds, are very pernicious. The dried leaves, are said, however, when smoked, to have been useful in some cases of asthma.

Fig. 254.



Tobacco.

To this series must be added the *tobacco* plant (fig. 254). Its name is derived from its being originally brought into Europe from Tobago, or Tabago, an island in the Bay of Panama, near the coast of America.

Fig. 255.



Cestrum.

Of a family, which some botanists regard as allied with the *solaneæ*, we give one illustration (fig. 255).

THE SISTERS IN ART.

PART VI.

In addition, there was other good fortune. At the death of Mr. and Mrs. Lesnor, who both died no great while after she had left Soho, Alice found herself richer by £100 per annum; her good friends having left her this sum as a yearly annuity. By this means she was enabled to secure the cottage which had been her father's, and to replace in it the furniture that at his death had been removed to the vicarage. Here, through all the subsequent autumn, she spent some weeks with her beloved sisters in friendship and in art, and renewed her own deep sympathy with nature in the moorlands and by the sea.

It was now midwinter, and the sixth one from the time Alice had left her relatives. The three friends were now as one, and after a day's hard work, as they were seated round the studio fire, with Mrs. Welwyn—their kind friend and landlady—Mr. Beaumont came in, accompanied by three strangers, who sought an introduction. The one was a Belgian, well-known to Miss Law and Miss Beaumont by name, as they and Lizzy had been some months previously the successful competitors for a design advertised for by a Belgian firm, with which this gentleman was connected. He said he had come for the purpose of proposing further work, praised their former design greatly, said that it had been most valuable, for it brought together three truths rarely found so united in design—the natural, the scientific, and the artistic.

"Yet such is but the simple result of our several tastes, or readings of art, sir," replied Alice, with a smile, "brought to bear upon one object. The larger outlines, you so much admire, are mine; the geometrical curves, running from point to point, so beautiful in themselves, are Miss Beaumont's; whilst the filling up in detail, the stray flower, the rounded boss, the delicate touches, so small in themselves, so much as a whole, are those of our young friend here, who has always had a passion for flowers, for ancient fictile shapes, and for such little odds and ends of beauty as lie in London curiosity shops, old churches, or ancient houses. My own lines, such as they are, are gathered from a wider field—the great one of nature—the sweeping wind—the surf upon the shore—the dark outer edge of the ocean's blue—the rack of cloud above cloud in the great mightiness of a winter's storm—these always give me lines and forms, that are for the larger part beautiful, because the visible forms and outlines of nature herself. Whilst this lady, my friend Miss Beaumont, to whom the design which won your prize is largely indebted for its success, draws her truths from such fields of nature as anatomy, and the noble one of science. Thus working together, our success is what it is—we wish it to be very much larger—for we are as yet no more than apprentices to art."

"But if so apprenticed," replied another of the strangers, who was an eminent French naturalist, and had been the intimate friend of young Beaumont during his residence in Paris, "to an idea so justly true, as the one you name, that is—that all forms of artistic talent subserve to its highest development, as ultimately shown in the progress of popular taste, and by the great resulting works of genius—you must pass speedily from your apprenticehood into that of mastership, because the entertainment of a great idea and its working out, are generally synonymous. And this is a great idea, because a true one, that the largest principles, whether in art or nature, are made up conjointly of minor and lesser causes, and unless these are held in consideration, the final result cannot approximate its highest sum."

"Miss Beaumont and I think thus," replied Alice, "though, strictly speaking, the idea was originally her's. But it falls within our province every day to see how the neglect of these minor clauses, these aids to art, injures art itself. For art does not consist in the mere ability to use the brush and pencil—there must be education, both moral and intellectual, and high in their kind, as well as resolutely carried onward, if a position beyond mediocrity is sought and desired. But we meet with young women, who think the only diligence requisite in the artist is with the pen and pencil, the cast and living model; and they forget all reading, all study, all view of nature beyond the mere artistic one. Miss Beaumont and I, however, think differently; we have ourselves found the benefit of education and study, and we

shall, if possible, endeavour by-and-bye, to open an artistic school or college, in which art and literary education shall be made one."

"In the meanwhile," said the naturalist, "do you think you and your friends, can aid me and this English gentleman, who is my friend, in the designs for a proposed Encyclopædia of Comparative Anatomy, as applied to the arts, which we are about to write conjointly and publish in this country? I am led to ask this question by a curious circumstance. A few days since, in looking over some books relative to human physiology, we were struck by a portion of a design in one issued by Dr. Falkland, the great anatomist, some six years since. It was a configurement of the human hand, and seemed to me to be singular in its excellence. As I held a letter of introduction to Dr. Falkland, I at once proceeded to use it, and ask him the artist's name, as the preparations from which the drawings had been taken were, it is said in the text of his book, were those in his own museum, but I found him incidentally out of town for a few days. I then thought of applying to some of the head officials connected with the great hospital to which he is physician, and on hearing Mr. Beaumont's name as one of these, I used the plea of my friendship for his son, and found him as you see two or three days ago, and am thus indebted for the introduction of to-night. What is more, I have learnt, what I hope has not been a breach of confidence; namely, what a cause of domestic sorrow those designs proved to be."

"Just for the time being, though much of it has passed by," replied Alice, "but I hope before my old uncle dies, he will learn, and really believe what I and my aunt, and our old servant consider to be the fact, that Dr. Falkland's removal from his house, after a residence of so many years, bore no reference to mine and Esther's intrusion into the doctor's study. In my belief, the doctor never saw us, and is too good a man, even if he had, to so resent, what at the worst, was but an impertinence. Whereas, our intention was only a most charitable one."

"And likely to lead to great purposes, Miss Law," remarked the English gentleman, "if in the school you hope to establish, you open new means of education and employment for your sex; but, till education is made to form a correlative of art, art will not advance, or half the sources of design be laid open. But once approximate the literary to the artistic education, and a page of Plato, a poem of Tennyson, an anatomical demonstration of Professor Owen, a lecture by Dr. Lyon Playfair shall be found as suggestive, and indeed more so, in respect to originality, as the cast, or model. Yes, do this for England—for considering the undoubted talent she has to deal with, her Female School of Design is a national disgrace, as far as accompanying education and accommodation are concerned—and it will be said again, as it always will be, that misfortunes in the hands of genius are ever turned to blessings."

In a little while, when the Belgian manufacturer had arranged his business, and the French and English gentlemen theirs, they withdrew; but Mr. Beaumont remained to supper, and to read a letter he had received that evening from his son, in which there was an account of some lectures young Mr. Beaumont was at that time delivering from his professor's chair in the University of Edinburgh.

In a few days, when Dr. Falkland had returned to town from the north, the French naturalist used his letter of introduction, and waited upon him. Both men were so intimately known to each other through their respective books, as to be at once friends, and at the close of their lengthened conversation, when it had assumed a more familiar and common-place character, the naturalist mentioned his interview with Miss Beaumont, Miss Law, and Miss Wilson, and of the extraordinary incident connected with the design and the old picture-dealer's animosity.

If the sun or moon had fallen at his feet, Dr. Falkland could not have been more surprised, or more distressed, at thus finding he had been the innocent cause of so much domestic trouble to good little Mrs. Silver and her niece.

"I assure you," he said, "on the honour of a gentleman, that I have no recollection of seeing the young ladies in my study. I know I have an austere manner at times with me, and I had been, I recollect, peremptory in negativing old Silver's coming to and fro into my rooms, when I found such was his habit and inclination. I disliked as much at that day as I do now, intrusion at undue times into my place of study. For the rest, my change of residence had been long contemplated, and would have been made long before the time it was, but for my high respect for good little Mrs. Silver, and her incomparable old servant, who had attended me so long, so well, and so faithfully."

That very evening, Dr. Falkland ordered his carriage and drove to Soho. The curiosity shop was closed, for it was past nine o'clock, and the old man, who had been unusually out of temper, and cynical that day, had just descended from his high desk to partake of some gruel for his supper, which Nancy had just brought in, and good little Mrs. Silver nicely sweetened, and richly flavoured with nutmeg and other palatable things. The old man heard the well-known knock just as he was tasting his gruel; he knew it, and laid down his spoon in a sort of triumph.

"There, there, wife," he said, "that's the doctor's rap, and he's coming back to us at last. I thought he would forgive that girl's wickedness at last. I'm glad of it, wife, it'll just save us from ruin,—just from both of us dying in the workhouse!"

"Hush!" and his good little wife laid her fat expressive hand upon his very wasted one; for the old curiosity-dealer had been wasting and decaying of late visibly to everybody but those immediately surrounding him, and she smiled likewise, and shook her head, at his quaint eccentric want of truthfulness.

The doctor came in, sat down, and was visibly surprised at the vast change in the old curiosity dealer's physical appearance. After inquiring about his health, at once proceeded to speak of the discovery he had made that day concerning Alice and her uncle, and the exceeding pain this had given him.

"So far from my acting in the spirit you conceived," said Dr. Falkland gravely, when he had duly explained the reason why he had quitted the rooms he had so long occupied, "that had I been aware of these young women's visit and its noble motive towards assisting the poor old Italian Guiseppe, I should have honoured them, and not been more surprised than pleased. For though my life has been an austere one, and, excepting that of my sister's, little brightened by female society, yet I have too long observed the need of an advance in woman's education, too long observed her need of mental development, too long seen the necessity of woman opening other pursuits and professions as means of employment and of earning bread, to have thrown any obstacle in these young women's way, as far as regarded what assistance my anatomical collections might have been to them in respect to their artistic studies. What is more, Mr. Silver, I have heard such a character of your niece from Mr. Beaumont, and this since my interview with the French naturalist this morning, as to make me doubly regret that your unjust suspicions should have robbed me of the honour of having aided in any way the studies of this noble young woman, of whom both you and Mrs. Silver have so much reason to be proud."

As he thus spoke, the doctor unfortunately glanced at Mrs. Silver. This was perceived by the cynical, suspicious old man, who in a moment—fancying that the whole was a plot of his good little wife in order to bring about his permanent reconciliation with Alice—became more obstinate, more suspicious, and more cruelly inclined than ever. All he could be got to do was to shake his head and utter negatives of the harshest kind.

Perceiving the utter uselessness of reasoning with the old man, Dr. Falkland soon took his leave, content with having briefly stated the truth, and determined that as far as he and his aged sister could make reparation, Alice should be no sufferer. Accordingly, next day, both he and Miss Falkland called at the "Sisters'" studio, and from that time a friendship was commenced, as valuable to the young women as it was one of admiration and pleasure to their friends.

Now, thoroughly convinced in his own mind, that this was the worst as well as greatest of little Mrs. Silver's plots against his purse and peace; and his vindictive suspicion intensified by his disappointment, that the doctor's visit had not, as he had momentarily supposed, related to the re-occupation of his old lodgings, the curiosity dealer's conduct both to his much-enduring little wife and old Nancy was violent and cruel in the extreme. He rated both soundly, went off to bed in the most atrocious humour,

and arose next morning, and behaved himself the greater part of the day in a manner, as poor weeping Miss Johnston said, in confidence to many, "that would make the best of china speak if it had a tongue." Then, in the afternoon, he went forth in a cab to the lawyer's, and there made a will, that had she known it would have caused his poor little wife's heart to stand still, indeed—for, with that cruel liberty against natural rights the English law permits—he made it so as to leave the whole of his astounding fortune to four great London hospitals, his matchless treasures to a low pettifogging relation of the defunct miser Van Cratz, and only the sum of one pound a week, for her life, to his good, faithful, generous little wife! As the lawyer was honest enough to tell him, it was a "monstrous will." Still for all that he made it, and went home in an extraordinary mood of triumph and rejoicing.

The year, in all its beauty, wore on. Stimulated by their success in so many other respects, the Sisters threw open their studio two mornings a week, to such educated young women as were already so far proficients in art, as to be able to take advantage of Guiseppe's fine casts, the anatomical preparations Dr. Falkland kindly lent, and the matchless flowers, the fine-hearted Jewish lady (now, alas! failing in health, and contemplating a long journey to the warmer climate of the East) sent unfailingly twice a week from her conservatory and gardens. Lizzy was the Flora of these flowers, and taught their exquisite uses in relation to design with matchless skill. This privilege of admission to the Sisters' studio was soon so well-known and appreciated as to necessitate a limitation of numbers; particularly when, in addition, the afternoons of two other days were devoted to the study of mathematics, geometry, and German. Miss Beaumont taught the two former, and Alice, assisted by a hired master (for she was now an excellent proficient in that language), the latter. Eventually, these benefits were still more enriched, when Esther's brother, giving up his lectureship in Edinburgh for an appointment in London of more value and importance, delivered a weekly lecture to the young female students on anatomy, as connected with design and the higher principles of art.

Time went on and led the winter into spring. One afternoon, as Alice was on her way to call on Miss Falkland, she was stayed by a dense crowd gathered on the pavement in a western part of Oxford-street. An old man, it was said, had fallen down either drunk or in a fit—the former case being considered the true one, those nearest to him were roughly handling him, and striving to make him stand. Alice was passing on, when some remark by one of the bystanders in allusion to the old man's dress at once arrested her attention, and looking as well as she could over the heads of the dense crowd, she saw, as she suspected, that it was no other than her uncle, not drunk, as she well knew, but, as was really the case, in a severe fit. Saying it was her uncle, she pushed her way through the crowd, and rescued him from the hands of the police, who, considering him to be drunk, were about conveying him to the station-house. She had him carried into the nearest chemist's shop, and a surgeon sent for, who, when he arrived, at once bled him, and in a due time after accompanied Alice home with him in a hackney-coach. There, amidst the earnest grief of his good little wife and Nancy, he was put to bed—never to rise from it again, for though, owing to the prompt and judicious bleeding, he recovered his consciousness entirely, and recognised those around him, his lips never uttered one more articulate sound. He lingered for a week in this manner, during which, his good wife and Alice, and young Dr. Beaumont never left him—and though at first seemingly afraid to lift his eyes when Alice looked at him and stooped to kiss in pity and forgiveness his dying face, it was soon evident, and this in a remarkable degree, that he loved her to be near him, and this the more, as the sunshine of her large, her unselfish forgiveness, spread its glory over her beautiful young face. As his strength lessened, he strove to make them understand that he had something to say and could not. At length Dr. Beaumont bethought him to bring a slate and guide the old man's hand—and then, partly by writing and partly by signs, he understood that the lawyer was to be sent for, as well as the will. When these came, jealously watching that no one read a line of the latter, the dying man beckoned them to bring a candle near, and then setting light to the parchment sheet, he would let no one move it, till he had seen it shrivel into atoms. Again he made signs—it was t bring the slate, and then with guided, assisted hand he wrote, s that the lawyer might, then and there, copy it on paper, " leave all I possess to my dear wife and Alice Law, to do as the like with, and may God forgive me!" This the lawyer briefl copied, then the old man signed it in his last mortal writing, an all around him witnessed it. Then he seemed happier, easier listened whilst they prayed, and not more than two hours afte this will was made, died in the arms of his wife, and wit Alice's hand in his!

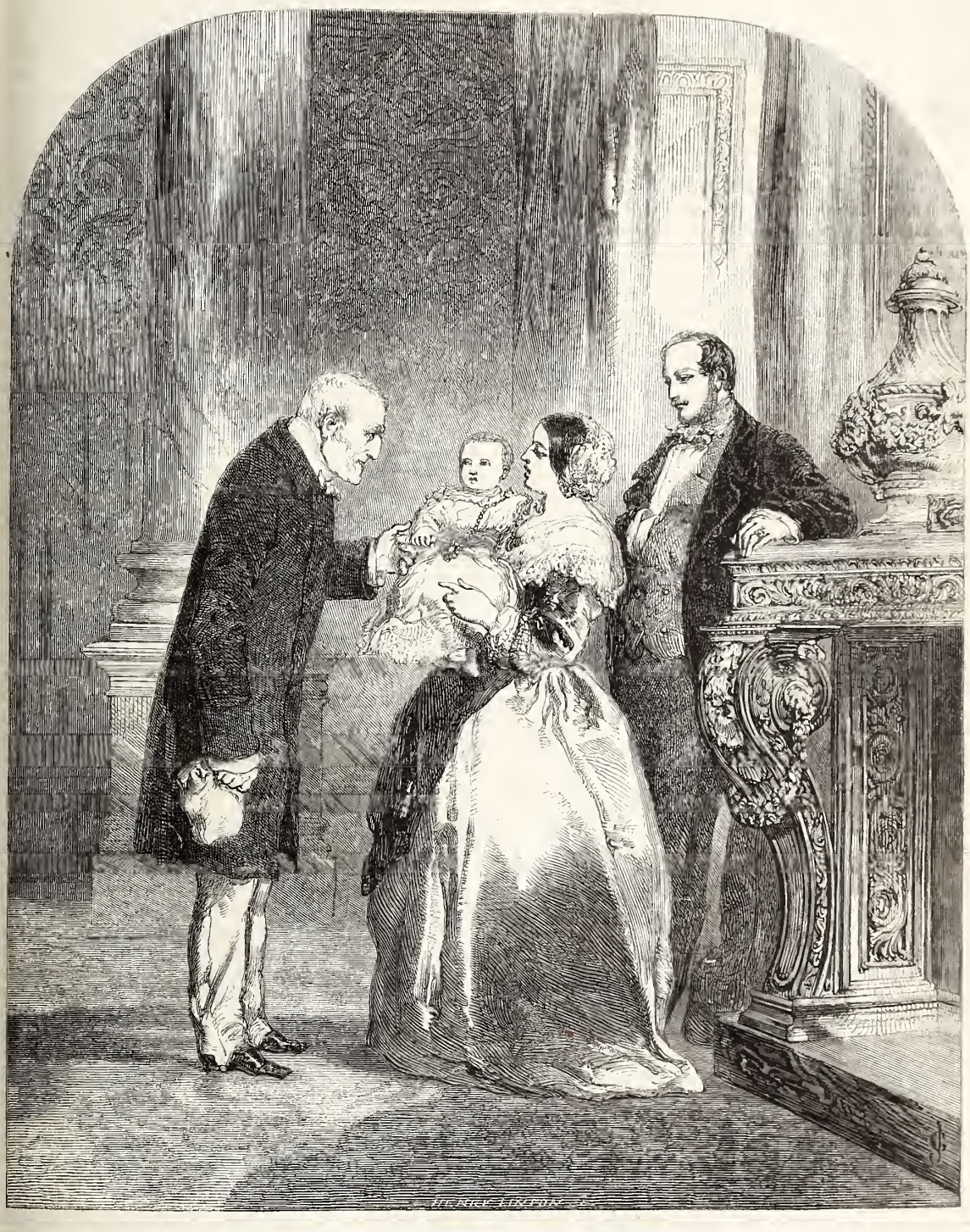
Upon the day of the funeral, when the old man's affairs wer made known, his wealth was found to be extraordinary—so muc so, as to even startle his good wife, though she had alway suspected him to be far richer than even he allowed he was. Bu for years he had been making money in ways she had no suspected, and what was more, adding to his stock all sorts of pre cious things in jewels, carved ivory, silver, lace, Indian fabrics and antique gems. These were found hoarded in drawers an boxes, as though to keep them were his motive rather than to sell

It was needful to pause over the use of wealth so great, and lef so unconditionally. As far as good little Mrs. Silver was con cerned, whatever wishes Alice might have upon the subject woul be sure to be right in all possible respects, but Alice, with genuin delicacy, refrained from expressing them.

"But, my dear child," said the good little woman, with a expression of vast perplexity and trouble, "what can *I* do wit so much money? Unless it be to have a new silk dress and new cap a little oftener, and in making poor old Nancy comfortabl for life through keeping another servant to do the work, or bein a true friend, as I have long wished to be, to Miss Johnston an her father, I know no way to spend a hundredth part of what w yearly have, so that you, my dear child, who are so much bette taught than I, must spend it. Will you like to go to Italy—yo and Esther—and shall I sell the things here, and buy a villa some where near the Thames, and keep a carriage for you? And you ca have a new dress as often as you like, and you shall have all th fine diamonds we have found in your poor uncle's drawers reset and you shall visit and dress, and go where you like, and be quit a lady, and work no longer, and perhaps, my dear," added th little woman, with a great show of maternal pride, as she looke into the sweet earnest face of the young creature at her side "you may marry some great gentleman."

"Dear aunt," replied Alice, unaffectedly, "such a thought ha never entered my mind, and even if it had, mere nominal great ness would be no temptation; and as for work, oh, I must alway work—the nobler and the better now that I shall have no carkin care as to how to live to-day and provide for to-morrow! Wit respect to all our wonderful wealth—wonderful for people lik ourselves—I have a desire, an earnest, soul-desire, as regards portion of it: a desire that I and Esther and Lizzy have talke over for years, as people will talk of dreams and plans even when there is little prospect of their realisation. That is, dear aunt, i you can understand the thing, to found a noble school, a Woman' College of Art, worthy of the time and its needs! where there woul be lectures and lessons, not at first sight related to art, but mos intimately connected with the great and true advance which ar has yet to have! And since, with your permission, I have know this power to be mine, I thought that this should be our plan That on the site of this and the adjoining houses, I would hav this college built—that in it should be placed the fine cast Guiseppe gave us, adding, of course, many others to them—tha all the exquisite china, bronzes, intaglios, carved ivory, and silve work we possess should go therein; and what remains, what would not be suitable for such a purpose, we should give wholly. or in part, to good Miss Johnston and her father, so that our old friends might be able to open a shop in this neighbourhood, and thus have the means of a comfortable livelihood for the rest o their days. In the meanwhile, whilst this school or college was being built, I and Esther and Lizzy would go to Italy and Ger many, there study and secure works of art for future use, whilst you and Nancy might go and spend some time in the little York shire cottage, and make yourself acquainted with the old hall and neighbourhood where I was born, and where my poor mothe lived so long and died."

ARTHUR, DUKE OF WELLINGTON.



THE DUKE OF WELLINGTON AT WINDSOR CASTLE.

It is not doing justice to human nature to say that the evil which men do lives after them, and that the good is oft interred with their bones. The last great change blots out from the minds of sorrowing friends the memory of a thousand faults and follies, which in life had destroyed hope, and infused fear into expectation. The little failings which had rendered the private career of the many who every year pass to their long home, unlovely or hateful, fade from the view, and the thousand little virtues which hang around every human heart, no matter how great its fall, stand out in high and consoling relief. It is this blessed charity, this holy forgiveness, which arises like incense from the ashes of the urn when besprinkled by the tears of mourners, which takes more than half its bitterness from grief. But if this be true of individuals who have run their course in the common walks of life, much more is it true of the great ones of the earth, who play their parts on the stage of events, and give a colour and turn to history. So far removed are they from the eyes of the multitude, that all minor defects are blotted out by the

splendid halo which success throws over their actions. To have possessed a giant's strength, and used it like a giant, dazzles men's imaginations, and renders them incapable of forming a calm judgment upon the purposes to which it was applied. They worship power above all things—worship it even when exerted for objects which ought to make it detestable, and which bring down calamities on themselves; and never does the great machine seem grander than when it has ceased to work, when the heart which schemed or prompted, has ceased to throb, and the mighty intellect which planned and directed has for ever rested from its labours. It is then that men seek most to testify their appreciation of their worth and influence. From the earliest ages of the world, down to the present, the obsequies of the great have been an august ceremonial, in which the grief, esteem, and admiration of whole nations have sought an expression in solemn trappings, and gorgeous decorations, in all the pride and pomp and circumstance by which we seek to cheat the last enemy of his terrors. The ancients sought to elevate their heroes above the rank of ordinary men, by representing their departure from the world not as partaking in the common lot of mortality, but as an apotheosis or translation to Olympus, where the virtues, wisdom, and valour of the deceased entitled him to rank among the gods, and to watch over the affairs of his countrymen with a more potent influence than he had ever exercised in life. In Christian times, we transfer the soul in full confidence to another sphere, but while we moralize in our pulpits on the vanity of earthly hopes and honour, we exhaust all the appliances of art and science on the decoration of the pall and hatchment, the catafalque and the funeral car.

The newspapers have for the last week teemed with minute accounts of all that England has ever done to mark her sorrow for the loss of those who have shed lustre on her history. We have been told of Philip Sydney's funeral, where barbaric splendour vainly sought to add brilliancy to a name, and durability to a memory, already both ennobled by a heart gushing with tenderness, but a stranger to fear, and a life above stain or reproach. His was one of those characters which could derive no additional weight from praises poured forth by the tongues of men, but we nevertheless feel that it was well for the nation to have testified its respect for great worth as well as for great success.

Another precedent which has been frequently cited is the funeral of Monk, who played a part so important, but so little understood, in the great revolution. The restoration of the old régime, and the Royalist re-action which followed it, procured for him the character of the saviour of his country, and a public funeral was decreed him accordingly.

But it has been reserved for the present century, and we might almost add for the present generation, for many who assisted at the one have witnessed the other, to celebrate the obsequies of two heroes, who have, on different elements, eclipsed all the glories of both ancient and modern times. Whatever value there may be in these displays, which, after all, the great masses look upon as but an agreeable show, there is no question that no occasion was ever so fitting for their production as when Nelson fell in the arms of victory, when his sun was at its meridian, or when Wellington went calmly to sleep in the Indian summer of his life-time. The one had revived in days of science, skill, and strategy, all the fierce enthusiasm and dauntless bravery of the Northmen, who scoured our seas when our seas themselves were a mystery and a peril, and whose history and exploits seemed to us all like a myth or a dream; the other, in days when the success of brute force, and the complete obliteration of all the old ties and principles which men held sacred, had placed warlike glory in a temple of light, though built up of bones and cemented with blood, set Duty on a throne, and proved that in her service lies not peace of conscience only, but worldly success. To both, the tawdry temptations of a low ambition were utterly unknown; to the claims of party, of self, or kindred, both were alike indifferent, and to both the happiness and safety of England were a guiding star.

Forty-four years ago, Nelson was borne to his last home amidst the tears and lamentations of countless multitudes, who felt with fear and trembling, that he had indeed been a strong tower of defence against the face of their enemy,

> "His last sea-fight was fought,
> His work of glory done."

For nearly half a century he has been resting in sublime repose beneath the mighty dome of the cathedral, which is at once a Christian temple and the pantheon of our heroes. On Thursday last, another, and no less mighty one than he, passed to his last abode, along the same route, amidst the same "pomp and pride and circumstance," to rest for ever in the same dark vault. The ceremonial, the prospect of which has so long kept the public mind in a fever, is over, at last; the bell whose knell is reserved for royalty, has rung that of one upon whom royalty could confer no further honour or reward. The Duke of Wellington has been buried.

After the close of the last session of parliament, when the crowd of fashion left town, the old Duke went with them, as was his invariable custom. His intention was, said the *Morning Post*, to receive a succession of distinguished visitors up to the opening of parliament, at Walmer Castle. In this quiet retreat all the graces of his character in private life were fully displayed, and he was enabled to give his aged frame the rest which he unwisely denied to himself while in London. But Providence had ordered it otherwise. On the morning of September 14, he summoned his valet to his bedroom, and directed him to send for the apothecary. When the latter arrived, the Duke appeared to be labouring merely under an attack of indigestion. Within a short time afterwards he was seized with fits, and before the afternoon he was dead. One of his sons and his daughter-in-law were the only relatives who were present when he breathed his last. A career of sixty years of war, diplomacy, and politics, marked at every step by triumphs, was ended like a tale that is told.

The news came upon the people like a thunderclap. The Londoners looked with amazement upon the short telegraphic announcement which, in large letters, heading the broad-sheet of the *Times*, informed them that the Duke of Wellington was dead. His great age, his growing feebleness, had never prepared them for such an event. "The Duke" was an institution in himself, an iron man surviving all changes of time, and men, and things; a great man and an old man when most of the present generation were in petticoats, and almost expected to outlive them. The first burst of painful surprise passed away, the eye glanced naturally to the broad row of long closely-printed columns in which the king of journals told the wondrous story of the great warrior's life. There it was, three pages in extent, a model of English composition, chaste, clear, and terse, flowing on to the close in one unbroken current, like the career which it commemorated, without flagging or faltering. For fifteen months it had rested in type, awaiting the inevitable hour, which befalls alike the greatest and meanest of mankind, and a still longer period had elapsed since a master hand had laid on the glowing colours which now met the public eye. Scattered over every part of the kingdom within the following twenty-four hours, it was eagerly read by all, and the loss which England had suffered was fully felt. Starting from those early triumphs of Indian history, which we now read of as of the Border wars or the battle of the Boyne, and glancing over the stupendous events which crowd the early part of the present century, down to the last and crowning victory, won nearly forty years ago, everywhere was Wellington's name found first amongst the foremost. The universal feeling then was, that, stupendous as were the honours and rewards with which he had been loaded, enough had not yet been done. The stillness of surprise was succeeded by the hush of expectation. "We have honoured him in his life," was the cry which at last arose from all parts of the kingdom, "how shall we now do honour to his memory?" A new ministry had been but a short time in office, and were anything but in the enjoyment of popularity. The Duke's death was considered a godsend to them, as they could thus have an opportunity of gratifying the wishes of the masses without doing violence to their own feelings. The general desire was that the great man's funereal rites should be performed at the public expense. It was so ordered. It was moreover demanded that he should be buried in St. Paul's, side by side with Nelson. This too was complied with; and, lastly, the nation said, "Let him lie in state in some large building where thousands may every day have an opportunity of testifying their respect for his memory by crowding to his bier." It was arranged accordingly, that he should be for a week placed in Chelsea Hos-

pital, in the midst of the shattered remnants of the great army whom he had so often led to victory.

Until the necessary preparations could be made for his reception in the latter place, the body lay at Walmer Castle, in the simple chamber where the old soldier passed so much of his time during many years of his life, and which will ever seem filled with his presence. The book-case, the camp-bed, the table and the chair, objects which will be inseparably linked in the English mind to a thousand great memories, marks of the simplicity which gave grace and dignity to the old man's declining years, were still there; but the place which knew him once so well knew him then no more, for the closed-up coffin proved that Death had entered in and taken possession.

A guard of honour, from the rifle brigade, was appointed to keep watch and ward on the ramparts over the body of their old commander. The Duke's remains were inclosed in an outer coffin, covered, after the fashion of royalty, with crimson velvet. On the lid near the head was placed the ducal coronet, and beyond it the pall gathered back to give visitors a complete view. The coffin was placed on a low stand covered with black cloth, and protected from intrusion by a small railing, around which candelabra with huge waxlights and plumes were arranged. The walls and roof of the small apartment were hung with black cloth, the deep-recessed windows closed, and bracket candles reflected against silver sconces barely relieved the gloom of the sombre drapery.

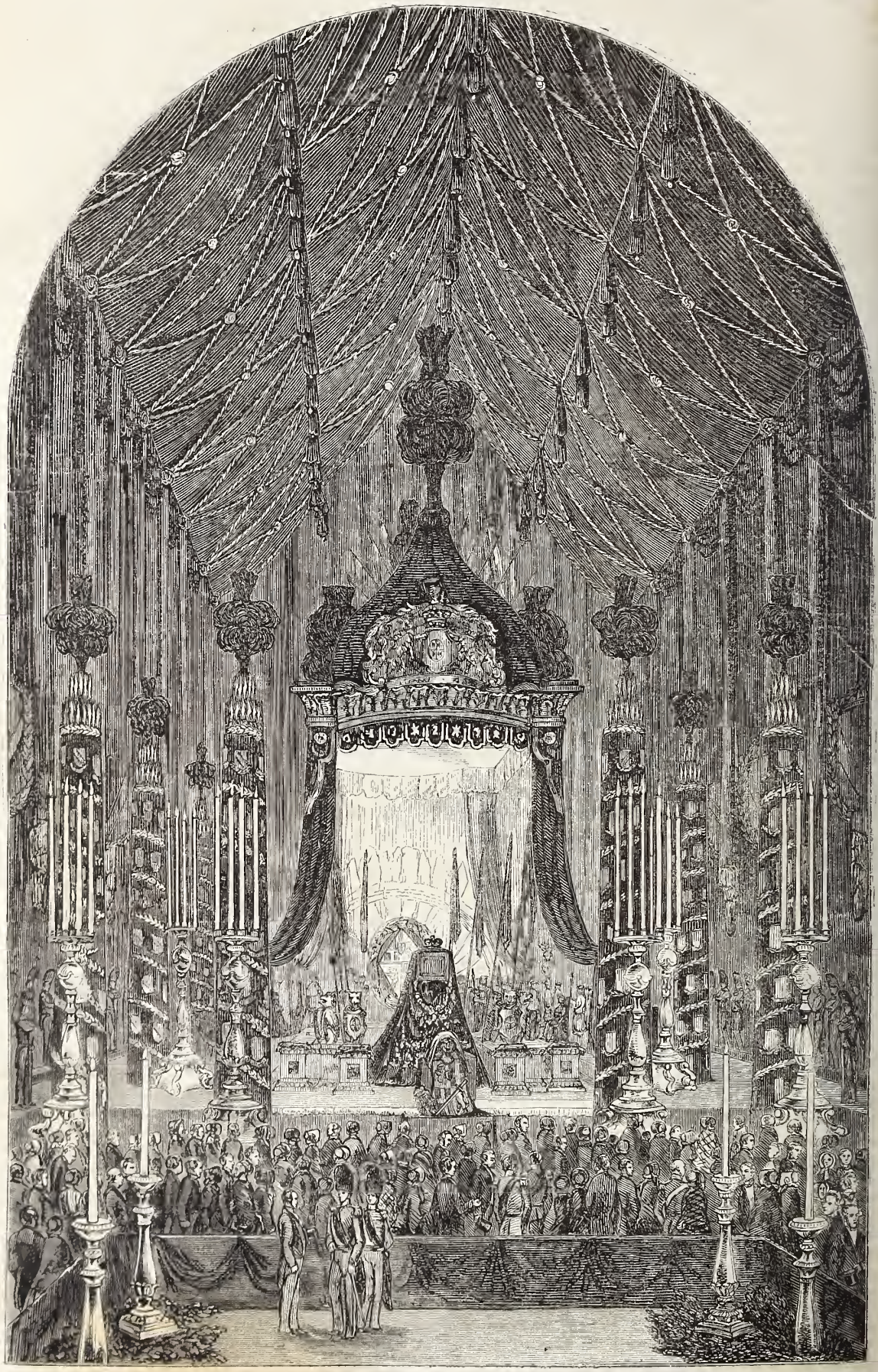
These arrangements having been made, the inhabitants of Deal were admitted to take a last view of his remains. Crowds availed themselves of this permission from all parts of the surrounding country, dressed in mourning, the very humblest having evidently exerted themselves to put on a respectable appearance for the occasion. There was no overcrowding or confusion of any kind, but all seemed suppressed with the solemnity of the scene. Those most ignorant of the real sources of the Duke's greatness loved and respected him for the kind interest he took in the welfare of his poorer neighbours.

On Wednesday, November 10th, the preparations for the lying in state at Chelsea Hospital were completed, and the body was privately removed from Walmer Castle, and brought by railway to London and placed in the Hospital, with as much privacy as is possible on such occasions in England.

The decorations of the great hall were entrusted to Mr. Creekrell, the eminent architect, and they were in every respect worthy of the occasion. In the first place, it is requisite to describe the architectural arrangements of that portion of the hospital which was appropriated to the lying in state. Entering on the north side, the visitor passed through a spacious corridor, constructed for the purpose, hung with black, and darkened into a lofty octagonal-shaped vestibule, dimly lighted by a chandelier ornamented with plumes. The arrangements of the vestibule were executed in the simplest and most severe style, escutcheons were placed in the centre of each side-wall, and that immediately facing the approach bore a large and very effective trophy of thirty banners, surmounted by the royal standard. The worn, faded, and tattered appearence of these flags, seen through the gloom, had a singularly-striking appearance, and the interest which they excited increased, as, upon a closer inspection, you could trace upon the once flaunting banners such inscriptions as "Republique Française, que la Liberté, ou la Mort." In the centre of the trophy were the royal arms, encircled with a wreath of laurel. The fitting up of the vestibule was designed to give a national and patriotic vent to the thoughts of visitors, and to awaken in their minds recollections of our military glories. Beyond the simple escutcheons on the walls, and the sable draperies descending from the elevated lantern-shaped roof, there was nothing to suggest the name of Wellington; and, though some of the flags won in his battles were included in the trophy alluded to, they were placed without any distinction along with others, under the common shelter of the national banner which crowned them. Standing in the centre of the vestibule, the visitor found the hall and the chapel running to the right and left of him on either hand and in suite, so that from each he saw to the end of the other. Both were entered by short flights of steps, which raised them above the level of the vestibule, and added considerably to their architectural effect. Both were further remarkable for their excellent proportions; and even through the plainness of their interior fittings, before the recent changes were made, it was not difficult to detect the master mind of Sir Christopher Wren, who designed them. Of course, the preparations for the lying in state had completely altered their ordinary appearance. The chapel windows were hung with black curtains, which excluded the light of day, and a few wax tapers, in gigantic silver candelabra, placed along the aisle, just dispelled the gloom sufficiently to show the eagles and Eastern banners, and other proud relics of our great wars, projecting from the walls.

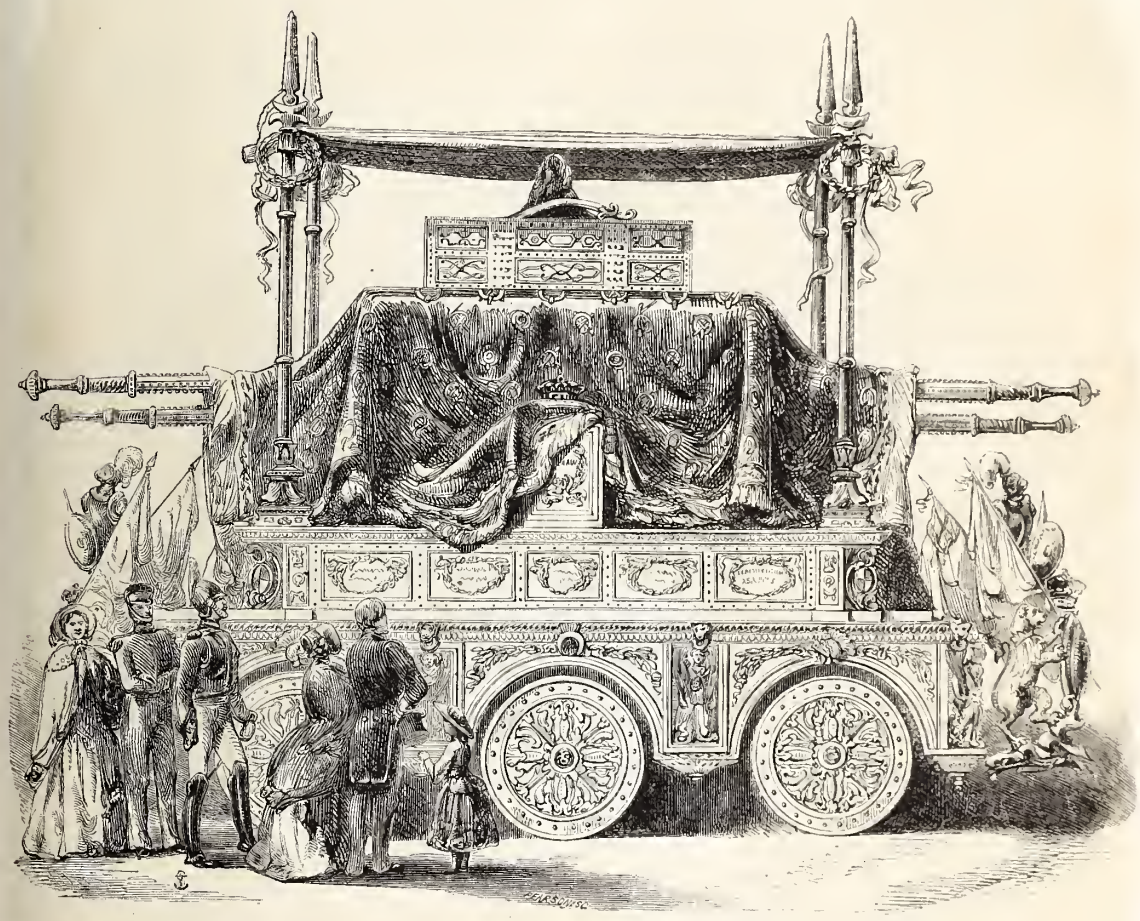
At the entrance stood a Grenadier Guardsman, his scarlet uniform strongly contrasted with the sable decorations around him, and his military appearance looked strange and unwonted in the threshold of the dimly-lighted sanctuary. Let us ascend the steps leading into the hall, and endeavour to convey some idea of the apartment where the remains of Wellington lay in state, to be gazed at for a few days with affectionate awe by his grateful countrymen. It was 118 feet long by 38 broad, and 49 feet high, and afforded, therefore, considerable facilities for the admission of visitors, which, however, was crowded to the uttermost for the few days. Happily there were no projecting corners or pillars which impeded the circulation of the crowds or obstructed the the view, and the decorations of the parts appropriated to the public were so simple that they had the full benefit of whatever room there was. From the entrance at the lower end of the hall visitors passed along one side until they reached the raised dais on which the coffin and bier rested. They then crossed to the other side, and made their exit at a side door, constructed for the purpose. A simple railing was put up to facilitate the general arrangements, and to separate those in official attendance at the lying in state from spectators. The hall was hung throughout with sable drapery, formed above into a tent-like shape, the effect of which was greatly heightened by white bands arranged diagonally, and breaking the monotony of the perspective. On the side-walls graceful pendent folds were arranged at six feet distances, and in the intervals were placed escutcheons of the Wellington family, inclosed within elegant wreaths of laurel in green and silver. The raised dais at the top of the hall, on which the remains of the deceased hero reposed, were covered in the centre with a cloth of gold carpet, the bier (four feet high and nine feet long) was formed of black velvet, and surmounted by the coffin, richly decorated with gilding and crimson velvet. On the end of the bier was suspended an overwhelming display of stars and orders, in number and importance far surpassing anything of the kind ever possessed by a single individual, and among which the insignia of the garter occupied the proudest position. The whole bier was surrounded by a magnificent silver balustrade, adorned with heraldic devices, from which projected ten pedestals, eight of which bore, upon black velvet cushions, the marshal's bâtons and orders of the eight following countries:—Great Britain, Hanover, Austria, the Netherlands, Portugal, Prussia, Russia, and Spain. The ninth and tenth pedestals bore the duke's standard and guidon, and attached to all were lion supporters in gold more than two feet high, bearing the shields and banners of the nations enumerated. At the back of the bier was her Majesty's escutcheon, surrounded by the Wellington bannerols, relieved upon a cloth of gold hanging. The gorgeous pomp of the dais was crowned with the magnificent and lofty canopy, of great size and novel construction, which rose to the ceiling of the hall, and was surmounted by a shadowy plume of feathers set in a silver socket. The hangings and curtains of the canopy were of the most sumptuous character, being formed of black velvet lined throughout with silver, and enriched with a heavy cornice and fringes of the same precious material. So skilfully had this part of the decorations been planned that the greatest lightness was combined with solemnity of effect, and the view of the catafalque was kept unencumbered by having the draperies gathered up in a series of graceful festoons.

And now let us endeavour to give some idea of the manner in which the hall was lighted up, so as to reconcile the splendour of the spectacle with that sombre character which in all ages has been regarded as appropriate to the manifestations of respect for the dead. It has been stated that the visitor entered through a



Drawn by A. Williams.] THE LYING IN STATE AT CHELSEA HOSPITAL. [Engraved by Gowland.

long darkened corridor into the vestibule, which was only partially illuminated, and that in the chapel, also, a few tapers were kept burning, which hardly dispelled the gloom. As you entered the hall, four long rows of colossal silver candelabra, distributed in double file, at regular intervals, on either side, and extending to the foot of the dais, rivetted the attention. They were fifty-four in number, stood seven feet high, and had wax candles in them seven feet long and three inches thick. Let the reader imagine as best he can the extraordinary effect of that species of illumination. It eclipsed anything of the kind that had ever been attempted in Catholic cathedrals, and produced upon the mind an impression not less remarkable than appropriate. The rows of candelabra next the side-walls being mounted on pedestals, burned at an elevation of seventeen or eighteen feet from the ground, and the light was thus shed more evenly than would otherwise have been extremely brilliant, and yet not too much so as to be out of character—an effect being produced not unlike that of the decorated shrines in Catholic cathedrals when lighted up. The last and the finest feature in the arrangements of the ceremonial at Chelsea Hospital remains to be noticed. Men, after all, are the greatest ornaments of any pageant, and the disposal of them at the lying in state was unusually skilful and artistic. A low platform ran along the side walls of the hall, and upon this picked soldiers of the Grenadier Guards stood like statues, resting on their arms reversed. Around the catafalque the Yeomen of the Guards were stationed, and nine mourners (one-half military, the other from the Lord Chamberlain's department) were seated. The chair of the chief mourner was placed at the head of the coffin, and was concealed from view. Colonel Thornton, commanding the Grenadier Guards, Lieutenant-Colonel Lindsay, Major Brownrigg, and



THE FUNERAL CAR.

the case over the sombre decorations of the interior. One might have supposed that such a number of candles would have illuminated the hall too brilliantly; but that was not the case, the immense mass of black drapery subdued all glare, and preserved a mournful gloom.

On the dais and around the catafalque the splendour of the arrangements rendered a great increase of light necessary, and there accordingly we found twelve magnificent silver candelabra placed, each holding five candles; so that within that confined space there were nearly as many tapers burning as in the whole body of the hall. In addition to this, ten hollow columns had been constructed, composed of spears, surmounted by feathers, and covered with laurel and escutcheons. These had each gas jets concealed behind them, the rays of which were thrown by reflectors on the gold and silver ornaments, the orders, the banners, and the rich hangings of the catafalque. The result was

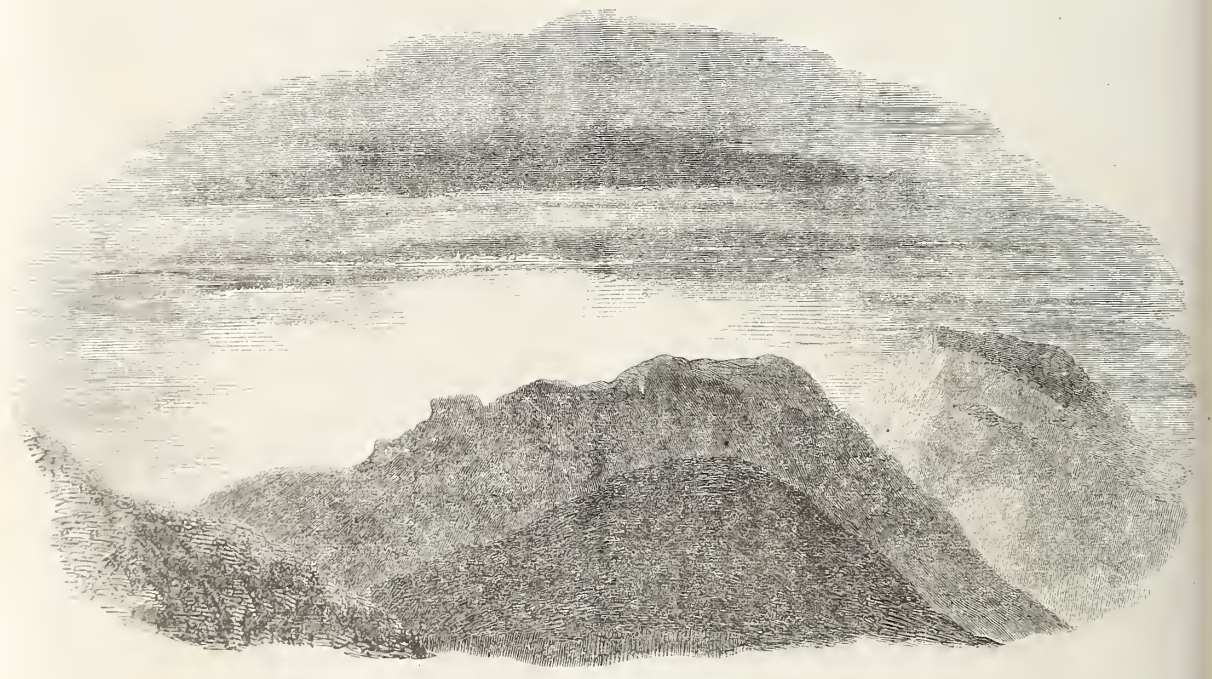
Captain Ellison, all, of course, in full uniform, were among those who officiated as mourners on Thursday.

On Thursday, the Queen and other members of the Royal Family attended the Hospital, to mark their respect for the memory of the deceased, and see that the preparations were in every way worthy of the hero in whose honour they had been made. After she had taken her departure, the pensioners were admitted to view the bier of their old commander. The scene was touching and instructive. Immeasurable as had been the difference between these decrepit old men, hobbling along the hall, and their great chief in rank and intellect and honours, all distinctions and differences were now at an end for ever. The glittering baubles that covered the catafalque were the last marks of honour which earth could ever bestow; and the private soldier and the marshal of eight empires were now on a level.

Friday was the day appointed for the admission of the "privileged classes" generally, by means of tickets from the Lord Chamberlain. The announcement was that tickets would be given to peers, peeresses, and foreign ambassadors, and such other persons as the said Lord Chamberlain might think fit recipients; but what was the rule acted upon with regard to these latter we are at a loss to determine. For several days the office at Westminster was besieged by applicants, and we believe that very few indeed who supposed their social position in any way entitled them to the good opinion of the officials met with a refusal. There were, however, some exceptions. Surgeons were rejected—barristers admitted, and multitudes who wrote letters, met with Mr. Micawber's fate—never got any answer.

When Friday came, the inefficiency of the arrangements was for the first time made manifest. Thousands on foot and in carriages crowded to the place, but not more than two-thirds obtained admission. Great was the lamentation and disappointment. Fashionable ladies, attired in all the panoply of woe, were obliged to sit in their carriages for hours, and at last to return home unsuccessful, without having had even the ghost of a chance. There was a great deal of cramming, and crushing, and pushing, a great deal more had assembled in front of the building, and to keep that huge and senseless monster—a mob, whose only spring of action is selfishness, from tearing, and rending, and crushing itself, only one hundred and fifty police were present. The consequence was such as might be expected. One or two slight barriers in the shape of a rope had been placed across the great square in front of the hospital, with the view of diminishing the pressure. As the crowd increased, a movement began to take place in an onward direction, and the ropes breaking, a fearful scene ensued. Densely packed together in one close mass, the women shrieked while they had breath and sense left in them, and from every side arose screams for air and mercy, while a thick steam hanging overhead attested the frightful heat and suffering which each individual must have been undergoing. Two females were carried out dead; how many of both sexes were seriously injured will probably never be known. Of all who assembled at Chelsea, probably not more than one-third were successful in gaining admission to view the lying in state.

An inquest, long leaders in the papers, another shower of letters from "Fathers of Families," "Constant Readers," "Haters of Humbug," "Vindices," "Corroborators," "Ones who were



PROFILE OF THE DUKE OF WELLINGTON, AS SEEN IN THE OUTLINE OF BEN LOCHAN, LOCH GOILHEAD.
SKETCHED BY T. REYNOLDS, ESQ.

of disappointment, and next day a host of letters in the *Times*. Every one now began to ask, if these things happened when the admission was restricted, what would be the state of things when the way was opened to all, without distinction of rank or position? Various methods of avoiding the crowding or pressure were suggested, such as charging a shilling at entrance, or obliging all who presented themselves to wear some mark of mourning, which is much the same thing. Much as we may regret the creation or perpetuation of distinctions dependent on worldly wealth upon occasions like this, it was, nevertheless, a necessity. The suggestions were, however, not attended to, and the result was unexampled confusion and disaster. On Saturday, the first day on which the hall was open to the general public, the trains brought up thousands from the country; thousands more abandoned their various occupations in London, and hurried from all directions to Chelsea. The penny omnibuses were attracted from Oxford-street, and began to carry passengers to the King's-road for sixpence; and dog-carts, go-carts, and every other description of car, and cart, and carriage, were put into requisition also. By nine in the morning, a hundred thousand people or there," and "Sufferers," so effectually frightened the public, that the attendance on Monday was comparatively small, so that those who went obtained entrance with ease. This fact was made known by the press again on Tuesday morning, and again the monster crowd assembled. This time numerous strong barriers had been erected, and nine hundred police were on the ground to repress all attempts at crushing or crowding. The misery, discomfort, and dissatisfaction experienced by every one who went was again great; and to add to them, the rain in the middle of the day came down in torrents, driving away many who from early morn had bravely borne the burden and heat of the mob, and who after having for hours been trodden upon, bruised, crushed against barriers, rubbed against dirty coalheavers, tormented by bad jokes, disgusted by coarse ones, were obliged to force their way out and run for shelter. Shelter! There was no such thing in Chelsea. Every shop, and public-house, doorway, gateway, and archway, for half a mile round, were crammed by dripping hundreds, with sodden hats, flimsy torn bonnets, dresses so well moistened, that they showed the outline of fair figures as clearly as those of a nymph in a picture running against a high wind. A more pitiable spectacle could not



Drawn by Nicholson.]

[Engraved by Mason.

be looked upon. What was worse still, those who had lost heart and were willing to abandon the scene to fitter actors now found it well nigh impossible to get home. Cabs were a vain expectation, whilst it was only the rude and boisterous who could gain entrance to an omnibus.

Such was the condition of those outside. Those who were lucky enough to escape the perils of seven or eight barriers, and force their way into the hall of death, were repaid by a passing glance at a scene of rare and solemn splendour; but the continued rush of the crowd hurried all on so rapidly, that we daresay that out of the thousands who witnessed it, not one retains of it any impression save a vague recollection of light, silver, and dark cloth, and tall soldiers in a sorrowing attitude, with arms reversed. But it would be doing injustice to the people who have thronged to the bier of the departed warrior, whether from mere idle curiosity or a better feeling of respect for his memory matters not, if we did not here testify to their uniform good humour, forbearance, and kindliness to one another. Whatever disaster has occurred is due rather to defective arrangement on the part of the authorities than to any inherent badness in the crowd. The poor and uneducated classes may not perform their kind acts gracefully, or utter their kind words so delicately or winningly, but the motive which dictates them is as pure and praiseworthy in a peasant as in a lord. We have seen ruder and more selfish mobs at the Opera than at Chelsea Hospital.

On Wednesday night the lying in state was over. Nothing now remained but the funeral, and for this gigantic preparations had been going on. It has often struck us during this eventful week, what a harvest the carpenters must have reaped! All the way from Hyde-park corner to St. Paul's Cathedral, on both sides of Piccadilly, the Strand, Fleet-street, and Ludgate-hill, the shop windows were stripped of their gaudy decorations, and exhibited in their stead tiers of naked and ugly planks; while, instead of the dulcet notes of young gentlemen coaxing the ladies to buy ribbons and lace, nothing was heard but the noise of sawing, hammering, and chopping. Tiers of seats in shop windows, tiers of seats on the first floor, tiers of seats on the second, tiers of seats in gateways and archways, tiers of seats over the graveyards, in the porticoes of the churches, and even on the roofs of the sacred edifices themselves,—in short, wherever there was space for a man to sit, and wood could be placed for him to sit on, met the eye on every side. As the time approached, the benches began to assume all sorts of coverings—some red cloth, some black cloth, and some very common and cheap drugget. Some had an imitation of cushions on them, intended to catch the eye of ladies and gouty gentlemen, and some, too, had backs. These, we observed, were all ticketed as "very desirable." One shop in Ludgate-hill, wishing, doubtless, like ladies' boarding schools, to make the company select, requested no one to apply there for seats who was not prepared to leave his name and address. We are not aware whether this allured anybody of aristocratic pretensions or not. Another, four doors from the line of route, animated no doubt by an ardent desire for gain, erected seats also, although it was utterly impossible to catch a glimpse of the funeral from such a position, save by thrusting the body halfway out of the window. The churchyard of St. Clement Danes, which is the scene of so many horrible desecrations, and so many disgusting profanations of the dead, and which aids in spreading so much death and misery through the neighbourhood, was covered over by scaffolding, and the people invited to inhale poison for five or six hours of a November morning at so many shillings per head. All the clubs along Pall-mall had seats erected over their areas for the accommodation of the friends of the members, who were charged twelve shillings each, to pay the expense of refreshments, and of the scaffolding. The prices of seats in other places varied. In shop-windows and first floors along the Strand, they varied from one guinea to thirty shillings; but inside Temple-bar, and on nearer to St. Paul's, they were still higher. On the afternoon of Wednesday strong barriers were erected all along the sidepath from St. Paul's to Temple-bar, and all the crossings were strongly barricaded to prevent, if possible, all pressure from the crowd, and it was announced that no one would be admitted into the city after nine o'clock, except by a pass from the Commissioner of Police. As the evening closed in the streets presented a strange appearance. The morning trains had brought thousands from the country, and thousands more had driven in in gigs and dogcarts, and now thronged the thoroughfare in dense masses, totally stopping the circulation. On every side the sound of hammering was still heard, as the carpenters hurried on to bring their work to a completion, and the torches glared fitfully from the scaffoldings, or light shot up from the gas mains, where holes had been dug to fix in the barriers. To pass from Farringdon-street to Temple-bar was no ordinary trial of strength and patience, and could only be accomplished by a series of dodges amongst the carriages, carts, waggons, and cabs which filled the street in a closely-locked labyrinth of confusion, whilst the drivers swore and yelled, and policemen helped by their remonstrances to keep up the clamour. At Temple-bar the obstruction had reached its height. Here a vast crowd had collected to witness the fitting of the decorations with which aldermanic taste had thought fit to adorn the gateway, black cloth and tinsel, put together in true undertaker fashion. Things continued in this state until a late hour at night, when the crowd was somewhat diminished. Some went home for a short sleep, but a great number braved the inclemency of a November night, in order to be sure of a good place on the morrow. The preparations at St. Paul's had been vigorously carried on, and in the evening of Wednesday were apparently near an end.

Thursday morning dawned through a fitful, heavy sky, moist-looking and grey, as if the rain which had fallen in torrents through the night were not yet exhausted, while a sharp wind rattled ominously against the windows. The notes of preparation began to be heard, even in the remote and quiet parts of the metropolis, so early as four o'clock, carriages driving rapidly, and footsteps hurrying along the pavements, loud talking, and occasionally the blast of a horn, and on looking out a light might be seen in nearly every bed-room window, betokening that the inmates were up and on the alert. Notwithstanding the sharpness of the morning, the cab-drivers appeared to be in excellent humour, for they were reaping a harvest. In the West End, twelve shillings for a drive down to Charing-cross or the Strand was indignantly refused, whilst in most cases a guinea was asked and freely given. At five o'clock the omnibuses had begun to run in Oxford-street; and marvellous to relate, the threepenny ones had in the course of the night got up to sixpence, while more marvellous still, the penny ones had risen to a shilling. At the same hour, however, large crowds had already taken up their position in the Strand, and along the rest of the line. At half-past eight all the other streets of London seemed deserted, and between the Horse Guards, to which the body had been removed from Chelsea on the previous evening, and St. Paul's, probably a million and a half of people were crowded in the windows, on the housetops, along the side path, and on scaffolding, a vast, silent, and expectant mass. It was one of those grand sights which occur at but rare intervals in history, and which no man ever sees twice in a lifetime—a nation at the funeral of a great man. Looking from an elevation, there appeared huge lines of black, with here and there a red speck, where the Guards galloped up and down along the line; but nowhere could the eye light on anything that was not gloomy and sombre.

Carriages continued to roll along in rapid succession up to the last moment, conveying persons either to St. Paul's or to seats along the route. The crowd assembled along the pavé displayed admirable patience. Most of them had been on the ground from five in the morning, and instead of any attempt at disorder or tumult, all was as still as if each individual had a personal interest in the ceremonial. It must have been a scene full of instruction for foreigners—the population of a great city assembled in one spot, and kept in order, not by any display of force,—for the comparatively small body of police must have been powerless against any manifestation of the popular will,—but by an innate sense of what was proper and befitting the occasion. The nation was *en rapport* with the Government, in all the arrangements, even the most minute; a circumstance which rarely, if ever, happens on the continent. There never was so signal a display of the benefits of self-government, of the influence which it has in the formation of habits of obedience to the general will, mutual forbearance, and self-respect.

As the morning wore on, the clouds partially cleared off, and the sun broke in fitful gleams through the smoky atmosphere, and its rays falling in the street, brought out the mourning which veiled the scarfs and lace of the military officers, who rode at intervals up and down, in strong relief with the scarlet of their uniforms, and the cold brilliancy of their swords and cuirasses. The sound of the carriage wheels had ceased, the buzz of conversation carried on in subdued tones, and the occasional clang of accoutrements alone broke the general silence, save when a dog tearing madly along the broad lane, hedged in by the rows of spectators, called forth laughter or shouts from the more volatile or impatient of the crowd. Then another interval, and the wind sighed mournfully as it travelled up the street, and passed through the scaffoldings, and rushed up the alleys and courts, bringing with it now and then a faint sound of distant music. Expectation was now on tiptoe; the last act but one in the great drama was close at hand, the procession was on its way; the crowd became hushed, the roll of the muffled drums broke more heavily on the ear, the policemen dressed the line on each side, and the troop of Guards which led the van, rode slowly up.



BANNEROLS OF THE WELLESLEY FAMILY.

The troops had assembled before daybreak at the Horse Guards. At eight the coffin was placed on the funeral car, the first minute-gun was fired, the troops presented arms, and the procession advanced in the following order:—

INFANTRY—Six Battalions.

Band of the 2nd Battalion Rifle Brigade.

Major-General Fane.
- 2nd Battalion Rifle Brigade.
- Band of the 1st Battalion Royal Marines—Chatham Division.
- 1st Battalion Royal Marines.
- Band of Her Majesty's 33rd Regiment.
- Her Majesty's 33rd Regiment.

Bands of the Scots Fusileer and Coldstream Guards.

Major-General Shaw,
- Battalion Fusileer Guards.
- Battalion Coldstream Guards.
- 1st Battallon Grenadier Guards.

Band of the Royal Artillery.

ARTILLERY—Nine Guns of the Field Batteries.

Band of Her Majesty's 17th Lancers.

CAVALRY—Five Squadrons, viz.,—

Major-General Jackson.
- 17th Lancers.
- Band of Her Majesty's 13th Light Dragoons.
- 13th Light Dragoons.
- Band of Her Majesty's 8th Hussars.
- 8th Hussars.
- Band of Her Majesty's Scots Grays.
- Scots Grays.
- 8th Dragoon Guards.

Eight Guns of the Horse Artillery.

The 17 Pieces commanded by Colonel Whinyates, C.B.

Band of the 1st Life Guards.

Major General the Hon. H. Cavendish.
- Royal Regiment of Horse Guards (Blues).
- 2nd Life Guards.
- 1st Life Guards.

The Troops moving in the procession, and also those on duty in assisting the civil authorities to preserve order and prevent accidents, were commanded by

Major-General H. R. H. the Duke of Cambridge, K.G.

The Infantry, drawn up in columns in front of the Horse Guards, presented Arms and reversed Arms, and having saluted the body, moved off the Parade at 8 o'clock, followed by

Marshalmen on Foot.
Messenger of the College of Arms on Foot.
Eight Conductors with Staves on Foot.
Chelsea Pensioners, in number eighty-three, on Foot
(Who fell in at Charing Cross).
Twelve Enrolled Pensioners on Foot.
One Soldier from every Regiment in Her Majesty's service.
Three Soldiers of Artillery, and three Soldiers of Infantry of the East India Company's Army, representing the Artillery and Infantry of the three Presidencies.
Thirteen Trumpets and Kettle Drums.
Two Pursuivants of Arms in a Mourning Coach.

THE STANDARD OR PENNON,

Carried by a Lieutenant-Colonel, supported by two Captains in the Army on Horseback.
Servants of the Deceased in a Mourning Coach.
Lieutenant and Deputy-Lieutenant of the Tower, in a Carriage.

DEPUTATIONS FROM PUBLIC BODIES IN CARRIAGES.

Merchant Taylors' Company, in one Carriage.
East India Company, in one Carriage.
Corporation of the Trinity-house, in one Carriage,
Barons and Officers of the Cinque Ports, in one Carriage,
With the
Lieutenant and Deputy-Lieutenant of Dover Castle, in one Carriage.
Captains of Deal, Walmer, Sandgate, and Sandown Castles, in one Carriage.
Board of Ordnance and Ordnance Department, in one Carriage.
Delegation from the University of Oxford, in two Carriages.
Deputation from the Common Council of the City of London, in three Carriages.
[Who fell in here after the preceding part of the procession had passed through Temple-bar.]
Two Pursuivants of Arms.
Band of Her Majesty's 6th Dragoon Guards.

THE GUIDON,

Carried by a Lieutenant-Colonel, supported by two Captains in the Army on Horseback.
Controller of the late Duke's Household, in a Mourning Coach.
Physicians to the Deceased, in a Mourning Coach.

In a Mourning Coach.
- Chaplain of the Tower,
- Chaplain of the Forces in the London District,
- Chaplain-General of the Forces,

High Sheriff of the County of Southampton.
Sheriffs of London, in two Carriages.
Aldermen and Recorder of London; a Deputation consisting of four Carriages,
[Who fell in here after the procession had passed through Temple-bar.]
Military Secretary.
Companions of the Order of the Bath, represented by Four, in one Carriage, viz.—
General Sir Loftus Otway.
Vice-Admiral the Hon. Joceline Percy.
Lieutenant-General William Sandwith.
Sir Joshua Rowe.
Knights Commanders of the Order of the Bath, represented by Four, in one Carriage, viz —
Lieutenant-General Earl Cathcart.
Admiral Sir John West.
Lieutenant-General Sir Hopetoun Stratford Scott
Sir S. George Bonham.
Knights Grand Cross of the Order of the Bath, represented by Four, in one Carriage, viz.—
Lieutenant-General Right Hon. Sir Edward Blakeney,
Admiral of the Fleet Sir George Cockburn.
Lieutenant-General Sir George Pollock.
Viscount Palmerston.
Being one of each Class from the Army, one from the Navy, one from the East India Company's Service,
and one from the Civil Service.
Heralds in a Mourning Coach.
Band of Her Majesty's 2nd Life Guards.

BANNER OF WELLESLEY,

Carried by a Lieutenant-Colonel, supported by two Captains in the Army on Horseback.
The Lords Justices of Appeal.
The Lord Chief Baron of the Exchequer.
The Lord Chief Justice of the Common Pleas.
The Master of the Rolls.
The Lord Chief Justice of the Queen's Bench.
The Chancellor of the Duchy of Lancaster.
The Chancellor of the Exchequer.
The Paymaster-General of the Forces.
The Right Hon. the Secretary-at-War.
The Right Hon. the Judge-Advocate-General.
The Master-General of the Ordnance.
The First Lord Commissioner of the Admiralty.
The Secretaries of State for the Home and Colonial Departments.
[Speaker of the House of Commons.]
The Earl of Malmesbury, Secretary of State for Foreign Affairs.
The Earl of Derby, First Lord Commissioner of the Treasury.
The Earl Marshal of England.
The Lord Great Chamberlain.
The Lord Privy Seal.
The Lord President of the Council.
The Lord Archbishop of York.
The Lord High Chancellor.
The Lord Archbishop of Canterbury.
[At Temple-bar, the Lord Mayor, carrying the City Sword, joined in the procession.]

On Horseback.			On Horseback.
	Assistant Quarter-master-General.	Assistant Adjutant-General.	
	Aide-de-Camp to the Deceased.	Aide de Camp to the Deceased.	
	Deputy Quartermaster-General.	Deputy-Adjutant-General.	
	Quarter-master-General.	Adjutant-General.	

A Carriage of his Royal Highness Prince ALBERT, drawn by Six Horses, with the Gentleman Usher, the Equerry, and Groom of the Bedchamber to his Royal Highness.
A Carriage drawn by Six Horses, with the Private Secretary, Treasurer, and Lord of the Bedchamber to his Royal Highness.

HIS ROYAL HIGHNESS PRINCE ALBERT,
in a Carriage drawn by Six Horses;
attended by the Lord Chamberlain of Her Majesty's Household and Groom of the Stole to his Royal Highness.
Field Officer in Brigade Waiting.
Serjeant Trumpeter.
Heralds.
Norroy King of Arms, in a Mourning Coach.
BAND OF THE ROYAL HORSE GUARDS.
THE GREAT BANNER.
Carried by a Colonel, supported by two Lieutenant-Colonels on Horseback.
[Here, on reaching the Cathedral, the Dignitaries of the Church, meeting the Body at the West Door, fell in.]
BATONS,
OF SPAIN—Borne by Major-General the Duke of Osuna, in a Mourning Coach—Supported by Colonel Gabriel de Torres and Colonel de Calvét y Lara.
OF RUSSIA—Borne by General Prince Gortchakoff, in a Mourning Coach—Supported by Major-General Count Benkendorff and Lieutenant-Colonel Tchernitzky.
OF PRUSSIA—Borne by General the Count de Nostiz, in a Mourning Coach—Supported by General de Scharnhorst and Lieutenant-General de Massow.
OF PORTUGAL—Borne by Marshal the Duke of Terceira, in a Mourning Coach—Supported by Lieutenant-General the Count de Villareal and Major Don Manuel de Souza Coutinho.
OF THE NETHERLANDS—Borne by Lieutenant-General the Baron d'Omphal, in a Mourning Coach—Supported by Captain Guillaume Tindal and Captain Gevers.
OF HANOVER—Borne by General Hugh Halkett, C.B., in a Mourning Coach—Supported by Colonels Poten and Marenholtz.
OF ENGLAND—Borne on a Black Velvet Cushion, in a Mourning Coach, by the Marquis of Anglesey, K.G.—Supported by Colonel the Duke of Richmond, K.G., and Major-General the Duke of Cleveland, K.G.

Gentleman Usher. | The Coronet of the Deceased borne on a Black Velvet Cushion, in a Mourning Coach, by Clarenceaux King of Arms. | Gentleman Usher.

The Pallbearers, Eight General Officers, in two Mourning Coaches.
Band of the Grenadier Guards.

Five Banners, borne by Officers in the Army, on Horseback.

THE CORPSE,
Covered with a rich Black Velvet Pall, adorned with Escocheons, upon a Funeral Car, drawn by Twelve Horses, decorated with Trophies and Heraldic Achievements.

Five Banners, borne by Officers in the Army, on Horseback.

Gentleman Usher. | Garter Principal King of Arms, in a Mourning Coach. | Gentleman Usher.

THE CHIEF MOURNER,
In a long Mourning Cloak,
accompanied by Colonel Lord Charles Wellesley,
The Hon. and Rev. Gerald Wellesley, and by the Hon. William Wellesley, his Trainbearer, in a Mourning Coach.
The Marquis of Salisbury, K.G., and the Marquis of Tweeddale, K.G., supporters to the Chief Mourner, in a Mourning Coach,
Assistants to the Chief Mourner.
Relations and Friends of the Deceased.
The late Duke's Horse, led by the Groom to the Deceased.
Private Carriages of the Deceased and of the Chief Mourner.
Band of the Royal Marines—Woolwich Division.
Officers and men from every Regiment in the Service; consisting of one Captain, a Subaltern, a Sergeant, a Corporal, and five men from every Regiment.
Band of Her Majesty's 93rd Highlanders.
CARRIAGE OF HER MAJESTY THE QUEEN.
Two Carriages representing Her Majesty's Suite.
Carriage of her Royal Highness the Duchess of Gloucester.
Carriage of her Royal Highness the Duchess of Kent.
Carriage of Her Royal Highness the Duchess of Cambridge.
Troops closed the Procession.

The car, with its various equipments, consisted of four stages or compartments.

1. The coffin was the principal object on the car, at the summit uncovered, having simply the usual military accoutrements, cap, sword, &c. upon it. To shelter the coffin and pall, a small canopy of rich tissue, formed of a pattern suggested by Indian embroidery, was supported by halberds. The tissue consisted of silver and silk, woved by Messrs. Keith, of Spitalfields; and at the corners of the halberds were hung chaplets of real laurel.

2. The bier was covered with a black velvet pall, diapered alternately with the Duke's crest and Field Marshal's batons across, worked in silver, and having rich silver lace fringe of laurel leaves, with the legend "Blessed are the dead which die in the Lord." The frieze was embroidered under Mr. Hudson's directions, and worked partly by students of the Female School of Ornamental Art.

3. The platform of the car was of an architectural treatment, gilt, on which was inscribed the names of the Duke's victories. The construction and modelling were executed by Mr. Jackson, of Rathbone-place. In the centre, at the four sides were military trophies of modern arms, helmets, guns, flags, and drums, being real implements furnished by the Ordnance.

The whole was placed on a carriage richly ornamented in bronze, about twenty feet long and eleven feet wide. Professor Sempre directed that portion. The modelling was executed partly by Mr. Whittaker, a scholar, and Mr. Willes, a student of the department, and partly at Messrs. Jackson's establishment.

The carriage was drawn by twelve horses, draped with the Duke's arms, three abreast, lead by sergeants of the Horse Artillery. The superintendence of the whole was entrusted to Messrs. Ranting.

Advancing along the park, it wound its way slowly up Constitution-hill, and emerged into Piccadilly through the archway. Upon every spot where footing could be got, men and women were crowded in dense array. Such a spectacle has, perhaps, never before been witnessed in England. Nearly four thousand men, marching in slow time with arms reversed, led the van, and so great was the stillness which reigned amongst the spectators that their measured footfall could be heard for a great distance, and fell upon the ear with a solemn heavy sound. Thirteen or fourteen bands, ranged at intervals at the head of each battalion, caused the music to roll onwards in great waves, one advancing as the other melted away in the distance; now the long wailing notes of the Dead March in Saul, interrupted by the heavy roll of the muffled drums,—now the lighter and more triumphant strains of the German Hymn, heralding the approach of a hero to his everlasting rest, his warfare over, and his toils for ever at an end; the same that was sung by the survivors of the German auxiliaries at Waterloo, at once a pæan and a dirge, to celebrate the last great victory of Arthur Wellesley,—then Mendelsohn's Funeral March, rolling heavily but grandly through the damp morning air, and striking like a knell upon the hearts of all.

When the long cortege reached the Strand, where the streets were narrower, and houses lined both sides of the way, the effect was more imposing than ever. The heavy masses of troops defiling before the spectators formed a *coup d'œil* which harmonized well with the feelings and memories of all who looked upon it. There was hardly one present whose imagination from his earliest childhood had not filled with the achievements of Wellington, who had not for many an hour hung absorbed over tales of war and love and glory, the heroes of which were subordinates in his army, and the scenes of which changed from day to day with the march of his battalions. In many a well-thumbed volume does the "Duke" appear as a man of iron nature, who had no part nor lot in the failings and weaknesses of his followers, the terror of swains who lagged in the rear, or strayed from the camp, allured by the charms of some dark-eyed Donna. Many a time and oft have we found it as difficult to realise the fact of his existence in our own time, as we would that of Marlborough or Charles XII. He appeared like some long-gone cavalier or hero, the recital of whose wondrous career made a winter's evening pass cheerily, but who was as far removed from our sight or touch as the Knights of the Round Table. The daring passage of the Douro; the frightful field of Talavera, where the protracted carnage of a long summer's day terrified even Spanish bandits by the desperate tenacity of heretic valour; the dashing charge and awful rout of Busaco; the brilliancy of Vittoria;

frightful scenes of slaughter in the passes of the Pyrenees; and the overtopping splendour of the field of Waterloo, that day on which the fate of Europe trembled in the balance, were all so many events of another generation, no traces of which were now visible on the surface of European society; and to believe that the Wellington of the House of Lords was the Colonel Wellesley who won the battle of Assaye, and was present at the storming of Seringapatam, required some little effort of imagination. And yet those lines of men in dark green uniform, those heavy masses of cuirassiers, and dashing hussars with jaunty air, and files of artillery, were pouring along the streets with solemn step and slow, in the funeral procession of him who forty years ago had reached the summit of fame and honour. And that in a quarter of a century of inaction he had not lost a whit of the estimation in which he was held, the proceedings of that day were a sufficient testimony.

The sternness of his character, the inflexibility of his will, his want of sympathy with the feelings of the masses, had been many a day forgotten, and the iron soldier had softened down into something to be loved and revered—a wise and sagacious old man. Those countless multitudes crowding the streets, the solemn music, the gorgeous trappings, the dead silence, the uncovered heads, the slow tolling of the bells, were not, as many well-meaning people imagine, merely parts of a pageant which passeth away like the fashion of this world, and is forgotten. They were the outward marks of sincere veneration for a life of loyal devotion to duty, unconquerable energy, unswerving truth, and abhorrence of shams. No man and no woman in that vast assemblage, sat in respectful silence on that chill November morning, as the funeral car rolled heavily by, for any other reason than because the body which lay still and cold beneath that pall, had for eighty-three years been the abode of a spirit which rose equal to all the fortunes of the world, unsubdued by adversity, and unmoved by prosperity, sagacious, just, and intrepid; because those lips had uttered great thoughts, and been the ministers of sage counsel in times of danger and difficulty; and because those hands had done heroic acts that had made foemen's cheeks turn pale. It was the adoration of a great principle—that we live not for ourselves, but to do the will of Him who sent us, whether uttered through the voice of a great nation, or whispered by conscience in positions of lowliness and obscurity. It was a great day for England, that funeral day, because it was the first on which a pageant taught a lesson of tremendous moment, and the first time that a whole people had received it in its full height and depth, and length and breadth. We are not hero-worshippers; we could never pay homage to the genius of destruction; but we believe that a great example is never thrown away—that a great memory is full of inspiration—that a man whose life has been the embodiment of an idea pleasing in God's sight, does not die with his body, but remains a living presence, unseen perhaps in the crowded mart, the tented field, and the bustling noisy forum; but teaching fine truths in solitude, silence, and retirement, to ardent and aspiring natures; teaching them their mission and its duties, fostering their enthusiasm, and attuning their hearts to fine issues. Who shall say that Wellington was and is not, and will not be, in this way, for many a year to come, a prophet and a guide?

[We are compelled to postpone our engraving of the Interior of St. Paul's till a future number.]

THE SISTERS IN ART.

PART VII.

"You would like this quiet country life, I think, aunt, for a time; and I am sure if Colonel Fountains should return from India whilst you are there, as my last letter from the good old schoolmaster seems to promise, he would be kind to you for my sake, for he well remembers me as his little baby favourite. Then, when we returned home, and this school were ready, think what a grand, noble life of duty, usefulness, and ministry to the true advance of art, in connection with woman's mind and woman's labour, we might carry out! Think of this! think of this!"

Alice raised up her enthusiastic, earnest face, made beautiful by truth, and read assent in the simple, loving eyes that watched hers so tenderly.

"As you will, as you will, my dear child," spoke the loving, tender, prosaic little woman; "as I always told Silver—you have the spirit of an angel."

But the business of a long life had made little Mrs. Silver wisely practical, and though at once fully determined that her niece's noble plan should have due fulfilment, yet that it should be done with safety to her interests. Accordingly, arrayed in her richest weeds, she waited on Miss Falkland, and through her consulted the doctor; then she laid Alice's plan before Mr. Beaumont, and for several evenings received young Dr. Beaumont in her little parlour, and spoke to him as she would to a son. After much consultation amongst the gentlemen themselves, for all three were eminently practical men, and their consultation with others likely to be acquainted with the financial prospects of such a scheme, it was considered feasible, and that as far as regarded such an institution, it could be made, when once fairly established, self-supporting. The only sum sunk, therefore, would be in the erection of the building.

When, therefore, it was settled to invest a portion of Alice's fortune in the erection of a Female College of Art, worthy of the age and of the women to be instructed, the three sisters went together to Wimbledon to see Mrs. Cohen, who, through the winter months, had been absent in the south of England, and was only now returned. As, alas! they expected,—for she was a patient of Dr. Beaumont—they found her very ill; rapidly hastening on that path all humanity has to tread. But she was delighted to hear their plan, as she had been already delighted to hear of Alice's noble fortune.

"I knew you would make a fine use of it;" she said, as embracingly she drew Alice to her side, "and would redeem any of the blots of its worldly gaining. But I am not quite so surprised as you think, as Esther's brother has more than hinted it to me; luckily, as it has given me a noble plea for assisting. You know, of course, that my days are numbered—that they are very few indeed. So, as I cannot take what I have with me, there is no merit in my deed, and I must be spared thanks. I have no heirs, as I think I told you; I have, therefore, since I knew your plan, made a disposition to the effect, that this house and grounds are given to your college, as a country studio, and gardens for the constant supply of flowers. There will be funds for the support of both; and as a gift to your college, for the purposes of art, I have left my collection of china, which is, I believe in some points, the finest in Europe."

Her young auditors were breathless—they did not know what to say—and their silence was not misinterpreted.

"There, there—don't say a word," was what was said when they essayed to speak, "only in return grant me one favour." Mrs. Cohen here addressed Esther and Alice.

"Oh yes, what was it—what could they do?"

"Spare me Lizzy—it will not be for long. In a week I leave here, to reach Syria by way of Alexandria, if possible. I want to die in that country of my birth and my race. Lizzy would see many things that were worthy remembrance for the sake of art, and when all is over, she shall rejoin you in Germany or Italy under the good care of my servants. Grant me this—spare me your sister, I love her as Naomi did Ruth—to die within those arms—supported by those hands whose fingers touch the many coloured flowers of nature with a passion like my own, will be a joy no other emotion on earth can give! May I ask such, and not in vain?"

Need I say how the noble women answered!—how the youngest, weeping her consent, vowed from that minute never to leave her friend, but to minister to her, as the Samaritan did unto the stranger!

The sisters that same evening left Lizzy with their friend; and a week after they had bidden her adieu, and she was on her way to Marsailles, *en route* to Alexandria, with Mrs. Cohen.

Before she departed, the Jewish lady had an interview with Dr. Falkland. From her he more formally learnt the splendid bequest of her well known collection of china, her house and gardens at Wimbledon, as an accessary to the intended college,

and attached thereto a considerable yearly sum, for the maintenance of both in the utmost beauty and order; knowing, moreover, his own intended gift of his matchless anatomical museum, the great anatomist thought it well to consult those most eminent in connection with the arts of the country. They at once saw the value of the intended college as an institition combining the highest literary and artistic education, and gave their most strenuous and noble aid, so much so and so effectively, that Alice had little more to do than to look over and give assent to their plans. When these were arranged, Mrs. Welwyn left in care of their studio, and Mrs. Silver and old Nancy sent on their way to Yorkshire, Alice and Esther, under the care of Mrs. Beaumont, departed to Paris.

Here they took lodgings, for they were to remain some time. They attended lectures, took lessons, visited the several galleries, ateliers and studios; and made a large acquaintance with the highest of those connected with art. One day in visiting the studio of a well-known painter, they were much struck by the figure and features of a woman past middle life, in one of the artist's *chefs d'œuvre*. The likeness was so great to that of poor Guieseppe, that they felt sure his worthless daughter must have sat to the painter.

"Can monsieur tell us," they asked, "anything of the history of his sitter, whose likeness is there?"—and they pointed to the picture.

"Ah!" was the reply, "you inquire, as others have done; for those features are eminently beautiful even in decline. Well, my model was an Englishwoman, of Italian descent, who came to Paris eight years or so ago, and for a long time was well known as a sitter to artists, as she had been previously in her own country. She came to Paris, it is said, in search of a daughter of indifferent character, who had accompanied one of the English aristocracy hither. For a long time her search was unsuccessful, for the girl was not in Paris at the time; but, about four years after her arrival, she met her in returning from my studio one evening, in the last stage of destitution, and hourly expecting to become a mother. The next day the girl gave birth to a daughter in one of the hospitals, and died a few hours after. Whatever passed between the dying girl and her mother is not known, but at least intreaties were made and promises given. The grandmother took the baby and supported it for some months by her needle, I believe, for I lost her as a sitter; at length she returned, saying she had sent her grandchild to some relatives at Padua, and she would be glad to again earn money as my sitter, now she could leave home. For some time she again came to my studio—during which period I painted the picture you admire—and when I lost sight of her, it was because she had met with some injury whilst crossing the street at nightfall. I have seen her several times since, for the purpose of charity, for now, being incapacitated as a sitter, she supports herself by her needle—poorly enough, as I believe."

"But why is her grandchild away from her?" asked Alice and Esther, in a breath.

"I scarcely know," was the reply, "excepting that living amidst low scenes and haunts, she has removed the child at the earliest date, so that it might escape contamination—for my wife, who saw it, tells me that it is even for a baby a marvel of beauty—a model for a sculptor."

"As its grandmother was." And then Alice told the painter of Guiseppe and his daughter's history, and of "The Child amidst the Flowers," the piece of work the old man would not part with, tempt him as tempters might. The artist was profoundly interested.

The next day Alice and Esther sought out the woman. They found her in the topmost garret of a wretched dilapidated house, hidden in a neighbourhood of ill repute. She sat working at her needle, though wearing the bandages and splinters of the hospital; and wretchedness and evident want told their own sad tale. Yet, curiously to say, on the broken chair which in place of a table held her work, was piled a little heap of silver coin, she did not strive to conceal, nor did she recieve her visitors with any show of grace, but continuing to ply her needle, neither had invited them to remain, nor indeed addressed them at all, though looking up austerely now and then into their faces.

Alice hastened to say why they had intruded, that they had admired the great artist's picture in which she was introduced, and learning from him her goodness to her grandchild, and of her late accident, had come to proffer her such assistance as they could give—particularly, too, as she was in some measure a countrywoman of theirs. The woman looked up suspiciously at these latter words.

"Oh I dont want any one to take interest in me," she said, hoarsely, "no one would that knew who I am, and what I was."

"The more for that very reason," replied Alice, gently; "don't fear us, or think that we have come to you from mere curiosity; but we know you to be the old Italian Guiseppe's daughter, and wish to serve you if we can, for we are earnest, very earnest friends of his."

She covered her face with her withered hands, and drew back as though she would hide herself from their gaze.

"Do not misunderstand or fear us," said Alice, kindly, "we come in the meaning and the spirit of frieuds, for we hear that you have a little grandchild, and we would serve it if we could, and take it to the old man who once called you daughter."

"Would he be good to it, would he take it, would he own it?" asked the woman with a rapid eagerness, that stood in broad contrast to her former apathy.

"If it be like you, and we stood intercessors, I think he would; though his vow against yourself is immovable."

"Justly so, justly so," sobbed the contrite woman, "I wronged him, wilfully wronged him, as few daughters wrong their fathers."

"But though he obliterates you from his heart, as you are now, he treasures your memory as you were, as a little child, and sat to him for that lovely work in marble—"The Child amidst the Flowers." This work he will not part with, though he has been richly tempted,—he says it is all that is left to him from the past."

The woman bowed her head down in the last bitter anguish of remorse.

"But I think he would take the little child," continued Alice, "and die happier for so doing. The more so if it be like you."

"So like,"—said the woman, "that were I a baby, too, we might pass for one another. But if my father would take it, and own it, and taking it forgive me, a load would be lifted off my soul; for though I have laboured to support it, through constant self-denial"—and she pointed to the little heap of silver and then to her own hollow cheeks—"and to give it a home with those of holy lives, as I promised its mother I would, I shall not do so much longer, for even the little strength I have is failing me."

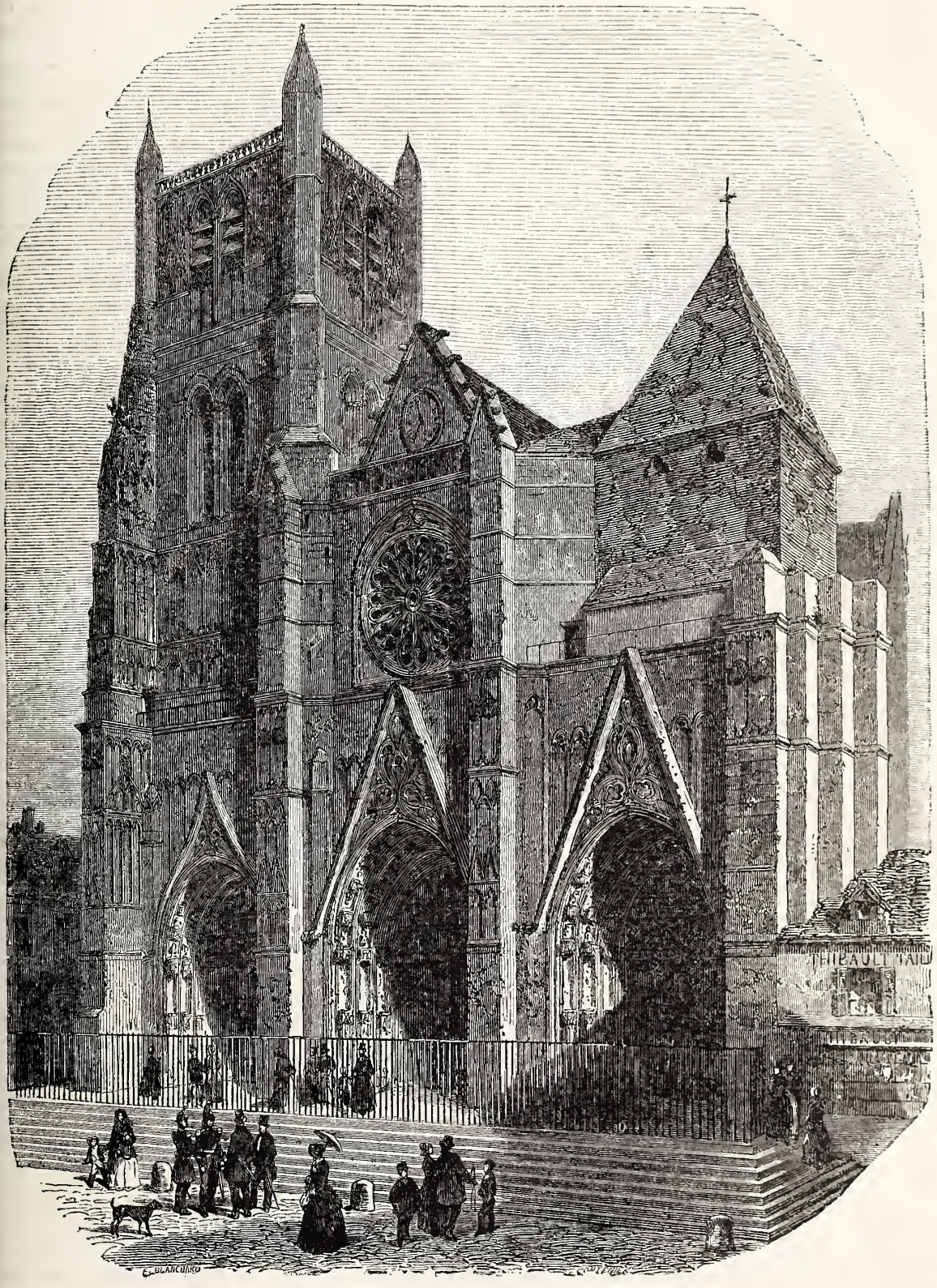
She then explained to her visitors that the child was with some distant relatives of Guiseppe's at Padua, in Italy, and that almost all she earned went towards its support,—she further said what a lovely child it was, and that its name was Angelica.

From this time Alice supported Guiseppe's daughter. She was removed to a lodgings in the suburbs of Paris, and a physician paid to attend her, and when Alice and Esther, some weeks after, left for Germany, money was placed in the great artist's hands for her support and that of the child.

After eight months residence and study in Germany, the sisters proceeded to Italy. They took Padua on their way to Rome, and here they found Guiseppe's little relative, well lodged in the house of a poor sculptor, who gladly received what he and his wife were paid for the care of the little Angelica. She was a lovely child of near five years old, and bore a marvellous resemblance to Guiseppe's *chef d'œuvre*. At once she won the sisters' hearts—all three of them,—for Lizzy had now joined her friends, as her hands were freed from her ministry by the death of the Jewish lady, not long before, in the town and in the house in which it had been her wish to die.

The sisters wished to adopt Angelica as their own child, but as the little creature had a baby's fondness for her foster parents, and it was cruel to attempt to part them, they prevailed upon the poor sculptor to remove with them to Rome, where, as was supposed, he soon found work, in the atelier of one of the great sculptors.

THE CATHEDRAL OF MEAUX.



The Cathedral of Meaux is a noble Gothic edifice. It was commenced in the twelfth century, and continued, at intervals, until the sixteenth century; but even then it was left incomplete. The present Bishop of Meaux has superintended its restoration, and the beautiful structure represented in our engraving is the chief architectural ornament of the city. It contains the tombs of several Bishops, and a monument to the memory of Bossuet, who for a long time filled the See, and was called "the Eagle of Meaux." The vaulted roof of the Cathedral is one hundred and nine feet in heighth.

THE GOOD OLD LAWS.

Longfellow has told us to let the dead past bury its dead; but there is a host of people ameng us who, eareless of the present, and trustless of the future, can find no beauty, truth, nor goodness, in anything but the olden time. When that particular period occurred is unknown; it is always, and always was, far away in the distanee; neither can it be definitely understood what rendered it worthy of so high a place. It may be asked—had the good old laws anything to do with it? Shall we find it in the statute books? Was it the good old laws that sentimental politicians have reveked, and morbid sympathy has scouted? Was it because of the ancient eode that the glory still lingers on the past?

The good old laws, that, like a lazy or unskilful surgeon, never attempted a cure, but amputated every diseased limb; that had but one remedy for nearly all crimes; that hung up nineteen men to grace the *debut* of the new drop before the debtor's door at Newgate; death for sheep-stealing, horse-stealing, forgery, house-breaking, pocket-picking, shop-lifting, highway robbery, arson, murder, with a host of others—approximating the penalties of the first degree to offences of an inferior character; a man's name, sheep, horse, house, purse, handkerchief, or stock in trade, alike valuable in the beclouded eyes of the old legal sagacity; when there stood in the margin of every calendar the constant repetition of the ominous abbreviation—"Sus: Per: Col," and this the only warrant that the sheriff had for taking away the life of a man.

The good old Saxon laws, that punished theft above the value of a shilling with death, except the man had property qualification, and could redeem his life—which power of redemption was taken away in the ninth year of the first Henry—and the law still continued in the reign of George III. And so with regard not only to horse-stealers, but to accessories both before and after the fact; as also for taking woollen cloths off the tenters, or linens, fustians, calicoes, or cotton goods, from the places of manufacture; extending to accessories, "aiders, assisters, procurers, buyers, and receivers," not only for sheep-stealing, but for killing with intent to steal the whole, or any part, of the carcass, or aiding or assisting therein. Also for thefts on navigable rivers, or being present, or rendering help thereat, or plundering a vessel in distress; stealing letters from the post-office, or stealing deer, fish, herons, or conies; or for committing a larceny "in churches or chapels, or booths, or tents, or markets, or fairs, in dwelling-houses by night or by day, in shops, warehouses, coach-houses, stables, or out-houses;" for street robbery, openly or privily; for the fraudulent making or alteration of writing to the prejudice of another man's right.

The varieties of other good old laws, that prescribe the same infallible remedy for infected morality, would seem as if our ancient legislators knew of no other cure; but an inference of this kind would be at once opposed to facts, they had plenty of other resources. For instance:—Women convicted of simple larcenies, in cases where the benefit of clergy would have been allowed to male prisoners, might be burnt in the hand, whipped, set in the stocks, or imprisoned for a year; but the punishment of burning in the hand being found ineffectual, was changed by a statute, in the days of William III., for "burning in the most visible part of the left cheek." But this rendering some prisoners desperate, was repealed seven years after, and the offenders were ordered to be once, twice, or not more than three times privately whipped, or sometimes this might be exchanged for transportation to America, or other place beyond the seas.

In cases of treason, the offender was to be dragged to the place of execution on a hurdle, hanged, embowelled alive, beheaded, and quartered; and in the latter part of the seventeeth century we have a recorded fact, that a certain printer was accused and condemned for printing libellous papers, and, although he pleaded his poverty and the sum that had tempted him to break the law, he suffered, with every aggravation of cruelty, a traitor's death at Tyburn, his body quartered and left to fester and corrupt over the city gates.

In murder, the body might be given up for dissection; in petit treason, or high treason, committed by a woman, she might be burnt alive; there was exile, transportation, an endless variety of brave punishments, such as cutting off the hand, slicing off the ears, slitting the nostrils. There was no want of inventive genius: they had the pillory, the stocks, and the ducking-stool, the trebucket castigatory, for the immersion of all common scolds as a nuisance to the neighbourhood.

The good old laws affected everybody: in the days when the plague was no stranger to the land, the infected were under stringent rules; it was also enacted, that soldiers or mariners, who wander about the realm without a pass from the justice of the peace, should be accounted felons. Outlandish people, calling themselves gipsies, were directed to leave the realm; and we are informed by Sir Matthew Hale, that thirteen having failed to do so, were hanged at Suffolk. Idleness and eavesdropping were likewise punishable. These laws continued to be the national eede in the last century. If this powerful machinery could not lash, and hang, and brand a vicious people into virtue, does it not seem that wrong remedies have been applied, and that failure was owing to the unskilful treatment of a bungling physician?

Perhaps, though it cannot claim the title of good old times from the good old laws, eoncerning crime and punishment,—perhaps it may from the venerable, successful, and efficient method adopted in the old courts of judicature; such as punishing standing mute and refusing to plead, by putting the prisoner in a low dark room, laying him on the bare floor, and placing upon his body as great a weight of iron as he could bear; sustaining nature, on alternate days, with three morsels of the worst bread, and three draughts of standing water; and keeping him in this condition till he died or till he answered.

Or the rack, the boots, the thumb-screws, sometimes used on State occasions; or the sure and certain trial by ordeal, that gives such thrilling interest to middle-age novels; the water ordeal, which required the accused to plunge his arm up to the elbow in boiling water, or by casting him into a pond or well adjudged him guilty if he swam, but returned a verdict of acquittal if he sunk like a stone to the bottom. To this irrefragable testimony the witchfinder, Matthew Hopkins, resorted in the days of the second Charles.

Or the fire ordeal, performed either by taking up in the hand unhurt two or three pounds of red-hot iron, or by walking blindfold and barefoot over burning ploughshares; or the morsel of execration, the ounce of common food exorcised by the priests, eat with a solemn appeal to God that it might produce convulsions and death if the man were guilty; or, more than all, the chivalric trial by battle, the appelee throwing down his glove, the appelant taking it up, the solemn denial, the solemn accusation, the oath against amulets and sorcery, the combat to be maintained "till the stars appeared in the evening," when, if so long preserved, the appelee should be acquitted: there is something in all this that stirs the heart like a trumpet,—a thrilling excitement that can never be awakened, an interest that can never be produced, by the common-place decision of twelve men in a box.

Good old laws! that extinguished fire and candle at eight o'clock at the sound of the melancholy curfew—that by their system of tenure reduced landowners to absolute slavery—that depopulated towns and villages to increase the royal forest;—take these good old laws in the mass, in their stern tyrannical majesty, and because our criminal code is now more consistent with itself, and more consistent with humanity, shall we take up the dirge for by-gone justice, and sing *Ichabod, Ichabod, the glory is departed?*

The lovers of the old time may regard these laws as something to be deeply regretted, they may make a stand for ancient judicature, or appeal to this or that characteristic of the by-gone, and harp upon that single string so jangling and so out of tune—the good old times, the good old times; and supposing we admit what they so fondly adhere to, and acknowledge that the past was worthy of the beneficent adjective they have bestowed upon it, still there are three degrees of comparison in history, as well as in grammar—the good old times, the better old times, but, by the bright light resting on the future, the best old times are coming yet!

HUGO GROTIUS.

On the 10th of April, 1583, Hugh de Groot, afterwards Latinised to Hugo Grotius, was born at Delft, in Holland. His family were of considerable standing and good repute in the neighbourhood, his father being not only a burgomaster, but one of the curators of the University of Leyden. His mother was an accomplished woman, coming of one of the best families in Holland. Clever mothers make clever sons. Of this Grotius was an instance. From his earliest years he exhibited a strong aptitude for learning, and as every facility was afforded him to indulge his passion, he became a scholar, and a ripe and good one. Before he was twelve years old, he found an efficient tutor in Utenbogard, an Arminian minister at the Hague, and he was afterwards removed to Leyden, and studied at the University under the able guidance of a learned doctor named Francis Junius. That he was a diligent scholar and an acute reasoner, is evidenced by the fact that at the age of fourteen years he maintained public theses in mathematics, law, and philosophy. His precocity excited the astonishment of the Dutch literati, and great things were predicted of young Grotius.

In 1598 Grotius quitted Leyden, in the suite of the famous John Olden Barneveldt, the able and patriotic statesman of Holland, whom he accompanied to the Court of the French King. He was introduced to that monarch—Henry IV.—who presented him with his picture and a gold chain. While he remained in France he took the degree of Doctor of Laws, and received the most marked attention from the most eminent men of the French nation. In the following year he returned to his native place, and commenced his career as a pleader or legal advocate. But Grotius did not simply confine his attention to the law. He possessed that passion for the universal which distinguishes all great minds, he had a miscellaneous appetite for knowledge of all sorts, both small and great. The same year in which he entered on his professional career, he appeared before the world in a literary capacity, by the publication of "De Nuptiis Philologiæ et Mercurii," of Martianus Capella, which it is said he had prepared for press before he went to France. This was followed by a Latin translation of a Treatise on Navigation, by Simon Stevin; and in 1600 he published the "Phenomena" of Aratus, with emendations of the Greek text. Grotius was also a poet. He cultivated Latin poetry, and produced, besides some shorter pieces, three Tragedies on Sacred Subjects—"Adamus Exsul," "Christus Patiens," and "Sophomphaneas," or the story of Joseph. His reputation, both as a skilful lawyer and as a literary man, increased day by day. He was appointed Advocate-General of the Treasury both for Holland and Zealand; and was also chosen Historiographer to the United Provinces. In 1608 Grotius married Mary Reigersberg. This lady was the daughter of the Burgomaster of Veer. A good wife was she to Grotius; her fond affection, her ardent love, her zeal in his cause, her determined energy never forsook her—alike in sunshine and in storm she clung to him—and her heroic conduct justified his choice.

The year subsequent to that of his marriage he published an elaborate treatise in defence of the general freedom of the seas, which drew forth an answer from Selden, in a tract entitled "Mare Clausum." The particular object which Grotius had in view in writing this treatise was to vindicate the right of the Dutch to trade to the East Indies, in spite of the exclusive claims of the Portuguese, and also to fish in the North Seas, when the English asserted their maritime superiority. This work shows how Grotius loved his country, how the flame of patriotism burned within his breast, and how, thus inspired, he feared no other power, however colossal and triumphant. For another publication of his, entitled "De Antiquitate Reipublicæ Bataviæ," he received the thanks of the state. The fame of the great man was increasing every day. His reputation was of no frail character. He was a tried man. In 1613 he was chosen pensionary of Rotterdam. This office afforded him the privilege of sitting in the Assembly of the States of Holland, and was a position of great political importance.

The dispute between England and Holland with respect to the fisheries of the North Seas, was still undecided. The matter every day became more pressing. Who so fitted, in all Holland, to conduct a negotiation on the subject as Grotius? Who so well acquainted with the merits of the case? Who so just and true, and who among their statesmen could be more entirely relied on? Grotius was accordingly requested to repair to England. He did so. The first of the Stuarts was reigning over the land. The Scottish Solomon, the royal scholar—so much better adapted for a schoolmaster than a king—received him with the greatest attention; not simply because he represented Holland, not because he was intrusted with the conduct of an important negotiation—but because his fame as a learned man, a wise scholar, had travelled to England before him.

It fared better with Grotius than with a certain other scholar who had awakened James from his usual lethargy and indolence, and caused him to summon up all his activity and zeal. A professor of divinity, named Vorstius, a disciple of Arminius, who had been removed from a German to a Dutch University, and, as he differed from his Britannic Majesty on some abstruse points concerning the secret decrees of God—was regarded as a dangerous rival in scholastic fame, and was at last compelled to yield to the syllogisms of that royal doctor. If James wanted vigour in other incidents of his reign, he behaved in this matter with arrogance and presumption; and the States of Holland, after several remonstrances, were compelled to deprive Vorstius of his office, and to expel him from their dominions. The king of England then desisted from any further persecution against the offending professor, though, as he very charitably hinted to the States, "that with regard to the burning of Vorstius for his blasphemies and atheism, he left it entirely to their own Christian wisdom, but never surely did heretic better deserve the flames."

Religious intolerance in those days ran high. Religion was made a party squabble. Christian men drew the sword, and perished by the sword, and when Grotius returned to Holland, the liberality of his sentiments, both in religion and politics, proved sadly detrimental to his interests. Two parties then divided his country. Calvanists, or as they were called Gomarists, and the Arminians, or Remonstrants. The Stadholder Maurice, Prince of Orange, supported the Calvanistic party. Grotius, Barneveldt, and others, espoused the cause of the Arminians. The dispute was no slight one. It seemed as if an impassible barrier separated the two parties. Each held tenaciously by the doctrines they had adopted. It was no charitable difference, no meekness of opposition. Religious zeal became religious phrenzy, it lost its theological in a political tone, the Arminians were regarded not only as schismatics and heretics, but as the enemies of the prince. The famous synod of Dordrecht was held; the Arminians were cited to appear before it. To appear was to be condemned; they refused to obey the summons, the plot was ripe for their destruction, and on the 16th of August, 1618, Barneveldt, Grotius, and Hoogerbeetz, the leaders of the anti-Orange party, were arrested. Barneveldt was the first who was arraigned. He was tried for harbouring designs against public liberty, and capitally convicted. To the entreaties of the family of the condemned—to the petitions which were presented for the pardon of Barneveldt, Prince Maurice turned a deaf ear. Nothing would satisfy—nothing move him—nothing save his victim but an acknowledgment of guilt. This acknowledgment Barneveldt and his family refused to give, and the prince remained inexorable. The blood of Barneveldt is a crimson stain that can never be effaced from the reign of Prince Maurice. At the age of seventy-two he calmly resigned himself to the axe of the executioner.

The trial of Grotius followed, in May, 1619, and being very irregularly conducted, it terminated in a conviction of treason against the government. A sentence of imprisonment for life was passed, together with the confiscation of his whole estates. The Castle of Louvestein was the place appointed for his confinement, and it will ever be celebrated for the prisoner it once contained. There he passed two years of his life in literary labour; his soul was unconfined, and roamed abroad among the works of God:—for

> Stone walls do not a prison make,
> Nor iron bars a cage.

His wife obtained permission to remain with him in gaol. This lightened the trouble of both. While in confinement he composed his celebrated poem on the Truth of the Christian Religion, which formed the groundwork of his later production on the same subject. We have before spoken of the wife of Grotius as a woman of strong principles and unconquerable courage. Shut up in gaol with her husband, with no bright prospect opening out before him, nothing but a convict's death and a convict's grave, she began to meditate some means of escape. The prison regulation had permitted Grotius to borrow books from his friends. These he was accustomed to receive and send away in large boxes, These boxes were at first regularly searched by the prison authorities, but as time passed on, and nothing ever was found but heavy volumes, Latin treatises, and tomes of whose contents they neither knew nor cared, their search became less vigilant, and



ESCAPE OF GROTIUS FROM THE CASTLE OF LOUVESTEIN.

many a chest went out, with the password, "Armininian books for prisoner Grotius," without question or examination. What if the bookmaker escaped in a similar way? This thought occurred to the wife of Grotius. It was a dangerous scheme; but the prospect of success warranted a trial, however dangerous. The governor of the prison was absent. The wife of Grotius requested permission from the governor's lady to send away a number of books, as she feared, she said, her husband would injure himself by so much study. The permission was given. So the chest being clear, Grotius was ensconced within it. The heavy lid was bored with holes for the admission of air. The guards were called in, and conveyed their burden down the ladder which led from the prisoner's apartments. It was very heavy. "There must be an Arminian in it," said one of the soldiers as he supported the chest. "There are Arminian books in it," said the wife of Grotius. The men laughed, and with some rough jokes upon the holders of Arminian doctrines, passed on with their load. But they doubted the truth of the story. They suspected the fact. They went to inform the governor's lady before they carried it without the prison walls. She, misled by previous information, directed its removal unexamined, and Grotius was conveyed in safety to the house of a friend at Gorcum.

When the real state of the case was discovered, the wife of Grotius was detained in custody on account of her part in the transaction, but a petition to the States General procured her release. Grotius found friends in Paris, and a firm supporter in the person of Louis XIII. There he continued his literary pursuits, and produced his famous "De Jure Belli et Pacis." He was solicited by Cardinal Richelieu to engage actively in the service of France, and his refusal greatly offended that powerful statesman. Not long afterwards he returned to Holland, but his reception was so cold, and the rumour of danger so unmistakable, that he thought it prudent to retreat. He afterwards became Swedish ambassador at the court of France. He continued many years to reside in Paris, and exercised the duties of his high office with credit to himself and advantage to the government he represented. In 1645 he was recalled at his own request. Then came the end. His health was impaired. He determined to go to Lubeck. Well rewarded for his long life of service, he embarked on board a vessel bound for that place, but a violent storm obliged him to go on shore at Dantzic, from whence he set off in an open waggon for Lubeck. His illness increased. No hope was given of his recovery—his eventful life was closing—and on August 28, 1645, he expired, leaving behind him an honourable name that will ever occupy a high place in the annals of literature.

RURAL PLEASURES.

JEAN PILLEMENT was born at Syrus. He came to Paris to finish his artistic studies, and travelled in England and Germany, and remained for a considerable length of time at Vienna. By his landscapes, marine views, and portraits, he not only acquired some renown, but a moderate fortune. He was appointed painter to the last king of Poland, and Marie Antoinette, but the revolution of 1789 scattered his patrons and interrupted his prosperity. He lost in one day all the money which he had acquired by years of toil for his support in old age, and returning to his native town, spent the rest of his life in poverty and privation. Some are still living who remember to have seen him, when an octogenarian, tottering along the streets of Lyons, giving lessons in drawing for trifling remuneration. There is a great number of Pillement's works in Germany, both in public galleries and in private collections, and his name is better known there than in France.

landscapes for the use of young artists, drawn and engraved by himself, in 1811.

The painting which we have reproduced well exemplifies both the beauties and peculiarities of the elder Pillement's style. Flowers, and fine ladies seated on the grass at the end of their park, with servants attending on them; on the other side rich bourgeois coming to enjoy a boating excursion upon the river; a spaniel, with outstretched nose, "keenly sensible;" two swans sporting upon the transparent water; the very trees trimmed by the pruning—in short, all the details of this smiling scene belong to a life of opulent leisure. You seek in vain for any sign of labour; no fisherman's bark on the river; no mill on the bank, no carts, no labourers, not even a cow cropping the grass of the meadows. The artist has carefully avoided everything "low." There is something silent and peaceful in the composition. It is



FROM A PAINTING BY PILLEMENT.

The painting of the *Four Seasons* has been engraved by the celebrated English artist, Woollet. A collection of engravings from his works was published at Paris, in one folio volume, in 1767. In the same year his son Victor Pillement, who acquired considerable reputation as an engraver, was born at Vienna. Until his fourteenth year he accompanied his father in his journeys through Germany, but being then thrown upon his own resources he applied himself to wood-engraving with great ardour, and afterwards to copper-plate engraving. He soon became distinguished by the great knowledge and minute accuracy displayed in his engravings of trees and vegetables, and in this department he has rendered important services to natural history. Notwithstanding his success, he fell into a state of profound melancholy, which destroyed his health, and he died at Paris in 1814, at the age of 47 years. He published a series of studies in an Eden

peopled by Watteau's Marquises, and the gardens of the Comic Opera. But there is no depth of feeling in it. It is merely an elegant mirage, in which nothing of the stern realities of life is seen.

There was in his works a good deal of what was theatrical and gaudy, both in the composition and the colouring; but his drawings were finished with great neatness. He was a painter admirably adapted for the ancient regime in France, as all love of nature in its simplicity seemed to have been lost amongst the court and the nobility; and it is doubtful whether, had he been born at a later period, he would ever have been an artist at all. One of the worst effects of bad governments is that it vitiates tastes and forces men into unnatural positions. Pillement's lot was no worse than befel many an adherent of the old system; and the only thing that is to be regretted about its fall, is that so many innocent men should have suffered from its effects.

FRENCH NEWSPAPERS.

Among the mysteries of life in France at the present moment, the greatest to an Englishman is the state of the newspaper press in that country. With most of us, a newspaper is an essential of existence. A good breakfast wants its chief relish unless the "Times" is served up with the toast. How can a merchant proceed satisfactorily to the business of the day, till he is read up in his ordinary newspaper intelligence? And the leisure of the evening would be without repose, had not a hasty glance been first cast over the general condition of the world and the special condition of England. Not less indispensable to the chit-chat of the evening party, is some acquaintance with the news of the hour as presented in newspapers.

To an Englishman, the very term, "newspapers" involves the idea of freedom of speech. Truth they may not always record, but they must be at full liberty to record truth. A gagged press is of no conceivable utility. Englishmen may be misgoverned, but they will not be knowingly duped. If ill-treated, they will be ill-treated with their eyes open. What right more honoured in observance than the right of grumbling at their rulers? and how could that right practically exist, if English newspapers did not say what they please?

A marvellous thing then is life in France, where, it is believed among us, newspapers, have at present only the most attenuated existence, and dare make no other than garbled and expurgated reports. The impression is vague and inexact. True, the newspaper press in France is in chains, but it is a chained giant. A few statements will put our readers into possession of the facts. In order to present those facts in their social bearing we must take a few steps back into history.

The earliest of French journals came into existence on the 1st of April, 1631. Its originator was Renaudot, physician to the king; its name, the "Gazette." The title was supplied by Venice, where, not long before, a newspaper had appeared called "Gazetta;" which took its name from that of the small coin which was its purchase money. The French Gazette was a weekly publication of eight small quarto pages. At first occupied exclusively with news, it in time narrated anecdotes of human life, and gave literary notices of recently published books. With, or without reason, the "Gazette" became an object of fear, so that in 1663, Renaudot was led to insert in it these words: "I entreat foreign princes and states not to throw away their time in barring the way against my news, for my Gazette is an article which they cannot suppress, and it is like the streams, which only swell and increase in power by opposition."

The revolution of 1789 swarmed with newspapers. In that year alone, not fewer than 150 fresh journals made their appearance. To these were added in the decennium which ensued, 573 newspapers. On these journals, which embraced literature, commerce, the fine arts, as well as politics, and which exerted a wonderful influence on the destinies of the world, were engaged many of the chief men of the day, such as Brissot, Marat, Condorcet, Barante, Rousseau, Mallet du Pan. So commanding did the power of "the fourth estate" become, that successive governments judged it necessary for their own security, to subject it to restrictions. The fall of a party involved the suppression of its newspaper representatives. In the "reign of terror," the daily paper exerted an awful power. When some degree of order was established, that sanguinary tongue was put to silence. The consular government forbad all political journals, save thirteen, among which we find "Le Moniteur," and "Le Journal des Debats;" scientific and literary papers, issued weekly, were allowed to pursue their career. None but citizens of France could undertake the publication of daily papers, and whoever assumed the office, was obliged to swear fealty to the ruling power, and abstain from everything derogatory to its influence and the honour of the army. Under the empire the condition of the newspaper press was more shackled; an independent course was no longer possible; the leading journals were merely tolerated; and Bonaparte did not conceal his opinion that the "Moniteur" was sufficient to acquaint the French nation with the current news. What the emperor thought of newspapers appears from a letter sent by him to the minister of police regarding the "Journal des Debats," which, it seems, he hated, since the paper maintained a negative opposition to his government, and allowed a slight inclination towards the Bourbons to be descried. Mere absence of hostilities did not satisfy Napoleon; he required and exacted warm and zealous support. When the Bourbons were seated on the throne of their fathers, they neither felt nor showed any cordial favour toward the journals. They did not, indeed, think it politic to imitate the despotism of Bonaparte. Besides, they were obliged to depart in some measure from the system of the "holy alliance," in order to put a contradiction on the injurious statement, that they had been restored by foreign bayonets. Yet by requiring large pecuniary guarantees of good behaviour, by the censorship, and by appeals to the legal tribunals, they went as far as they could in restraining the action of the newspaper-press. Its freedom and its dignity, however, were indirectly promoted by the fact, that the government papers met the journals of the opposition in free discussion, and that the highest officers of government, including even Louis XVIII. himself, contributed articles to the daily papers. The "Constitutionel," and the "Courrier Français" came into existence, and aided to give power as well as repute to such men as Remusat, Duvergier d'Hauranne, Thiers, Veron, Benjamin Constant, Casimir Perier, Mignet, &c. The revolution of July was, to a great extent, prepared by the "National," which was the organ of the party of progress, who found existing journals too lukewarm and too moderate for their purposes. The founders of the "Globe," however, surpassed those youthful zealots, and unwillingly confined their opposition within the limits of the constitution. In the conflict, the government were soon at a disadvantage. In the year 1824, the relative forces were as follows:—

Government Journals.	Subscribers.	Opposition Journals.	Subscribers.
Le Journal de Paris	4175	Le Constitutionel	16,250
L'Etoile	2749	Le Journal des Debats	13,000
Le Gazette	2300	Le Quotidienne	5,800
Le Moniteur	2250	Le Courrier Français	2,975
Le Drapeau Blanc	1900	Le Journal du Commerce	2,380
Le Pilote	900	L'Aristarque	925
Total	14,274		41,330

The difference of 27,056 in favour of the opposition increased in the next year to 31,400, and went on in the same proportion, as the government more and more developed its anti-national policy.

After the revolution of July, the number of opposition journals rapidly augmented, and soon reached above 500. "The Press," said Benjamin Constant, "is the master of the world." All parties now showed how firm and hearty was their belief of this proposition. Eighteen newspapers, reckoned each from 2,000 to 30,000 subscribers. Louis Phillippe feared journalism, yet durst not make open war on it. In the employment, however, of indirect means, he was diligent and crafty. The establishment of low-priced publications rather injured than benefited his government, by leading the people to occupy their minds with affairs of state, and turning their attention to the powerful attacks made in the opposition papers. In this, as in many other cases, tyranny undermined its own seat. The moral tone of the press under Louis Phillippe was nearly as bad as that of the government. Men wrote not so much to express their own real opinions as to put money in their purse or raise themselves into office. Nowhere so much as in France is journalism a stepping-stone to the ranks of government. And nowhere has its power been more abused for personal aggrandisement. In its higher departments, writing for the newspaper press is well paid among our Gallic neighbours. A chief editor receives from 20,000 to 30,000 francs a-year. Jules Janin had for his theatrical articles in the "Journal des Debats," an annual payment of 15,000 francs.

The February revolution called forth above 300 new journals; which, with few exceptions, patronised extreme political and social opinions. Among their conductors were Lamartine, Pierre Leroux, Ledru Rollin, Proudhon. A peculiar and a painful feature was found in the appearance of papers expressly devoted to the supposed interests of the female sex; such as "L'Opinion

des Femmes" (*The Opinion of Women*); "La Voix des Femmes" (*The Voice of Women*); "La Politique des Femmes" (*The Politics of Women*). The Catholic church appeared in strength by its representative "L'Univers," which, under the editorship of Veuillot, formerly a worshipper of Voltaire, undertook the patronage of the Inquisition, and the miracles of the Virgin Mary.

With the coup d'etat of the 2nd of December, by which Louis Napoleon began his efforts for an imperial throne, the press and the tribune, journalism and oratory received a deathblow. By the "organic decree," published in the "Moniteur" on the 18th of February, 1852, the President took all reality from freedom of speech. The chief features of the despotic ordinance are these:—for every journal or periodical work which treats of political or civil matters, permission must be obtained from the government; to obtain which, you must be a native of France, of full age, and in the enjoyment of all municipal and political rights. The permission has to be renewed on the change of the editor, or proprietor. Similar permission is requisite for those who wish to introduce and sell foreign newspapers; infractions of the law are punished by imprisonment and fine. Before the publication takes place, security for good behaviour must be given by the proprietors in sums varying from 15,000 to 50,000 francs. If a journal appears without permission, or before the security is fully paid up, a penalty is incurred, which, besides a heavy pecuniary fine, involves long imprisonment. The printer, as well as the publisher, is answerable for any legal neglect or offence. A heavy stamp duty adds its load to the burdened and almost crushed newspaper press: and foreign journals are as much as possible restricted in their circulation by importation duties. The publication of matter displeasing to the government is punishable by ruinous fines and imprisonment. All information respecting the transactions of the senate, but such as are put forth in the official organ, is strictly prohibited. Every editor is compelled to publish, without remuneration, such official documents and intelligence as the authorities may supply. If a journal offends the President or his creatures, a warning is given; should the warning fail of due effect, suppression ensues. When an appeal to the laws against a refractory editor proves unavailing, the president has a resource in his own will, and by a plenipotentiary decree, inflicts the punishment, or takes the revenge he may desire. Not an engraving, not a lithograph, not a pictorial placard can appear without express permission on the part of the government. Our "Punch," our "Illustrated London News," the periodical in which we write; nay, THE POPULAR EDUCATOR, and THE WORKING MAN'S FRIEND would, in France, if permitted at all, be for every number, and every picture, and every sentence, dependent on the will of the government. Nor can a book be sold without a special licence from the higher powers. The whole mind of the nation is put under the vigilant and jealous eye of the police, by whose strong swift hand transgressors are punished, and thought is suppressed. The caprice of one man is the hair by which the sword of Damocles hangs over every newspaper, every editor, every contributor.

Yet such is the activity of the French mind, and such is the demand for daily intelligence, that in the year 1851, not fewer than 144 new journals were put before the public. Many of these soon perished. The new crusade against the press put an end to 120 papers, about one-third of the whole then in existence. Nevertheless, in the month of May of the current year, the following was the daily force of Parisian journalism;—

Constitutionel	29,000	Assemblee Nationale	8,200
Siècle	25,000	Journal des Faits .	6,000
Patrie	23,500	Univers.....	7,250
Presse	18,300	Union	4,000
Journal des Debats	12,000	Gazette de France .	3,000
Pays.....	10 000	Journal	2,000
Estaffette	9,504	Public	1,650
		Total number of copies	161,350

It thus appears that 161,350 newspaper sheets appear in Paris every day, making 4,834,000 every month. In the month of April, this year, the government received from the Parisian newspapers, no less a sum than 313,562 francs.

The administration of these severe laws is entrusted to a Board, which keeps ceaseless watch over the whole. And the aim of the government is to destroy all political parties and interests except one, namely, the Bonapartist. In order to make that predominant, no means are spared; and the only journals that are indulged in any liberty of speech, are those which unequivocally and unreservedly espouse the views and promote the objects of the Dictator, who intends shortly to pass from the President's chair to the imperial throne. Newspapers which perform this office are allowed to speak freely, provided always they speak conformably to the desired end. Nay, the more fully they utter the mind, and forward the design of the aspirant and his creatures, the more are they encouraged and rewarded. No servility, no adulation is undue. Short-comings only are reprehended. And hungry men enough there are connected with the French newspaper press to do and accomplish all that ambition can desire, or despotism exact, or power remunerate. The empire is certain, because the press is enslaved. A free press and the empire are at present incompatible.

One of the most melancholy, and yet most ludicrous things connected with the press in France, at the present day, is that the newspapers receive their warnings or *avertissements* through the prefects of the various departments—illiterate, selfish, and paid functionaries, who seek, in their own rude way, to distinguish themselves in the eyes of the government by their zeal. After three warnings, a journal may be summarily suspended, and the capital invested in it is thus totally lost. When it is considered, that an honest expression of opinion upon any possible subject, the insertion of a piece of news unintentionally false, or, in short, anything but fulsome adulation of the President, is liable to excite the prefect's ire, and that he may be a personal enemy of the proprietor, ought not the Bradburys, and the Evanses, and the Walters and Ingrams, of our own country, thank their stars that they are not French publishers.

An unfortunate editor of a newspaper, in some town in the Pas de Calais—we forget the name—chanced, in one of his leaders, to compare the government of the Emperor Napoleon to that of Louis Philippe, as regarded its evanescence and instability. The prefect came down on him like an avalanche, and, having reproached him in the *considérants* with his stupidity in not perceiving that it was the people who drove out the Orleans family, while the Emperor was overthrown by foreign arms, he formally warned him. A professor in one of the colleges chose, as many great men often do, to celebrate some little event, in five or six stanzas, of very middling verse. The Minister of Public Instruction instantly suspended him for making bad verses. What an immense deal of time, and ink and paper, it would save, if everybody who wrote bad verses in this country were called to account for it in a similar manner! But should we laugh most at the censor or the censured?

Now that the empire is all but *un fait accompli*, rumours have become rife, that it is the intention of the government to abolish all journals except the *Moniteur* and the *Journal des Débats*, which will have its name changed to *Journal de l'Empire*. When we consider that none of the others contain anything different from these two, save ribald flattery and trashy *feuilletons*, we would feel neither surprise nor regret to hear that they had been extinguished. Every step of this kind hastens the downfal of the dictator, because it insults the intellect and morals of the French nation, and gives the lie to the base crew who, both in England and France, worship might when it gives them fêtes, orders, and three francs a day to masons and carpenters.

The surest proof that something is wrong in France is the position of the press. This alone is a sufficient answer to all the arguments of those who defend the *coup d'etat*, by pointing to the material prosperity of the country. No journal seeks to pull down a government which the public generally wishes to uphold; and as to any government being able to effect the suppression of any class of opinions, whether socialist or democratic, it is a piece of drivelling folly at which every man of sense may well smile. One hundred honest men, who believe socialism to be truth, may be vanquished by fair discussion, but never by either mitres or bayonets.

GOETZ VON BERLICHINGEN.



GOETZ VON BERLICHINGEN. DRAMA BY GOETHE. ACT I. GOETZ AND MARTIN.

Pope says somewhere something to the effect, that in describing a zephyr sighing gently through the leaves of the forest, the style should be soft and graceful; that it should flow gently when streams glide on with tranquil waters; but when the winds rise in fury,

and the sea lashes the shore with wrathful violence, the verse which pictures it should rush on like a torrent with a hoarse roar.



ACT IV. GOETZ WRITING HIS MEMOIRS.

And this idea applies equally well to all the arts. We should laugh at the painter who, for the delineation of camps, combats, and scenes of carnage, would borrow the palette and brushes of Claude Lorraine; and he who aims at depicting quiet, rural, or domestic scenes, should take care that his style harmonises with the nature of his subject; but in portraying the simple, but rude

and energetic, manners of the middle ages, he should not make use of the light and delicate pencil which paints the loves of Phillises and Chloes. The traits of old heroes should be graven with a point of iron, rude and inflexible as their armour.

We might add, also, that to give a faithful idea of life in past ages, we cannot do better than exhibit the men in the same manner as that in which the artists of their own time represent them. In what style, for example, would the engravers on wood of the sixteenth century have illustrated the life and achievements of Berlichingen of the Iron Hand? This is a question which M. Eugene Delacroix, an able French artist, has attempted to answer in four sketches, with two of which we this week present our readers—with what success we leave them to judge. For such an essay it was impossible to choose a better subject. Goetz von Berlichingen, born in 1480, may be considered the last of the real knights-errant on whom Cervantes wrote his immortal satire in the seventeenth century. He is known by the memoirs which he himself wrote, but better still by the celebrated drama of Goethe. "I wrote this," says the poet, "in my twenty-second year; when I read it over ten years afterwards, I was surprised by its truthful character." During his whole life Goethe retained a marked predilection for this work, which will certainly remain as one of the most hazardous, and yet happiest, efforts of the modern theatre.

Berlichingen was a noble character, and one worthy to be the theme of such a genius. His life was a series of struggles, generous aggressions, noble resistance, inimical to all unjust pretensions, and full of devotion to honour. In an age when even the laws of the empire were often overborne by the might of the strongest, when the nobles oppressed the burghers, and the burghers in their turn oppressed the people, he became the protector of the poor, and of them that were without help. But he came too late. He witnessed the decline of an order of things of which he could only uphold the remains. He acted as a knight when chivalry was no more. He carried on war for many years against the Bishop of Bamberg, then against the Archbishop of Cologne, then against the burghers of Cologne and the merchants of Nuremberg. It was in one of these *rencontres* that he lost his right hand. "I perceived," said he, "that the sword of my adversary had penetrated my gauntlet, and that my hand was held to my arm only by a small piece of skin. Then, as if nothing had happened and without allowing them to perceive the pain I was suffering, I backed my horse gently, and rode away to my companions."

A mechanician made him an iron hand, by which he was still enabled to hold the sword, and he continued to fight as before: now on behalf of a poor tailor who had been refused payment of a bill of two hundred florins, now for a squire who had been carried off from him. All his enterprises were perfectly disinterested.

At the close of his campaigns he re-entered his castle, poor as when he began them; but he had carried out his ideas of honour; he said he had fulfilled a duty, and he thanked God for sustaining him. He took the part of Duke Ulrick of Wurtemberg against the Swabian Alliance. In 1552, when that prince was driven from his dominions, Goetz was taken prisoner and conducted to Heilbronn. He was then asked to sign a document which he conceived injurious to his own honour. He sternly refused. They threatened him with a dungeon, but he was immoveable. In the meantime his brother-in-law, Sickingen, came to his aid with a troop of armed men. The burghers of Heilbronn were terribly frightened, and Goetz regained his liberty.

All these events are depicted in Goethe's drama with as much exactitude as is befitting a dramatic work.

In the first act Goetz is carrying on a campaign against the Bishop of Bamberg. He meets with a monk, Brother Martin, in the middle of a wood. Brother Martin feels himself drawn towards the hero, without knowing who he is, and he talks to him freely. The church, he says, is not his vocation in life; he admires and longs for the excitement of war. He relates all the sufferings he endures in the inactive life of the cloister, and when going away he asks the stranger's name:—

Martin. Let me request your name.

Goetz. Pardon me—Farewell! (*Gives his left hand.*)

Martin. Why do you give the left?—Am I unworthy of the knightly right hand?

Goetz. Were you the Emperor you must be satisfied with this. My right hand, though not useless in combat, is unresponsive to the grasp of affection. It is one with its mailed gauntlet—You see, it is *iron!*

Martin. Then art thou Goetz of Berlichingen. I thank thee, Heaven, who hast shown me the man whom princes hate, but to whom the oppressed throng! (*He takes his right hand.*) Withdraw not this hand, let me kiss it.

Goetz. You must not!

Martin. Let me, let me—Thou hand, more worthy even than the saintly relic through which the most sacred blood has flowed! lifeless instrument, quickened by the noblest spirit's faith in God.

(*Goetz adjusts his helmet, and takes his lance.*)

Martin. There was a monk among us about a year ago, who visited you when your hand was shot off at the siege off Landshut. He used to tell us what you suffered, and your grief at being disabled for your profession of arms; till you remembered having heard of one who had also lost a hand, and yet served long as a gallant knight—I shall never forget it.

Enter the two Troopers. They speak apart with Goetz.

Martin (continuing). I shall never forget his words, uttered in the noblest, the most childlike trust in God: "If I had twelve hands, what would they avail me without thy grace? then may I with only one——"

Goetz. In the wood of Haslach then. (*Turns to Martin.*) Farewell, worthy brother! (*Embraces him.*

Martin. Forget me not, as I shall never forget thee!

(*Exeunt Goetz and his Troopers.*

Martin. How my heart beat at the sight of him! He spoke not, yet my spirit recognised his. What rapture to behold a great man!

The second sketch represents Goetz in his castle of Jaxthausen. He has escaped from Heilbronn, thanks to his brother-in-law Sickingen, but the Emperor has pardoned him only on condition that he will never more take arms against any person. Seated at a table beside his good wife Elizabeth, he is writing his memoirs.

SCENE V. *Jaxthausen*

GOETZ *seated at a table with writing materials.* ELIZABETH *beside him with her work.*

Goetz. This idle life does not suit me. My confinement becomes more irksome every day; I would I could sleep, or persuade myself that quiet is agreeable.

Elizabeth. Continue writing the account of thy deeds which thou hast commenced. Give into the hands of thy friends evidence to put thine enemies to shame; make a noble posterity acquainted with thy real character.

Goetz. Alas! writing is but busy idleness; it wearies me. While I am writing what I have done, I lament the misspent time in which I might do more.

Elizabeth (takes the writing). Be not impatient. Thou hast come to thy first imprisonment at Heilbronn.

Goetz. That was always an unlucky place to me.

Elizabeth (reads). "There were even some of the confederates who told me that I had acted foolishly in appearing before my bitterest enemies, who, as I might suspect, would not deal justly with me." And what didst thou answer? Write on.

Goetz. I said, "Have I not often risked life and limb for the welfare and property of others, and shall I not do so for the honour of my knightly word?"

Elizabeth. Thus does fame speak of thee.

Goetz. They shall not rob me of my honour. They have taken all else from me—property—liberty—everything.

Elizabeth. I happened once to stand in an inn near the Lords of Miltenberg and Singlingen, who knew me not. Then I was joyful as at the birth of my first-born; for they extolled thee to each other, and said,—He is the mirror of knighthood, noble and merciful in prosperity, dauntless and true in misfortune.

Goetz. Let them show me the man to whom I have broken my word. Heaven knows, my ambition has ever been to labour for my neighbour more than for myself, and to acquire the fame of a gallant and irreproachable knight, rather than principalities or power; and, God be praised! I have gained the meed of my labour. *

* Scott's translation. Bohn's Standard Library.

THE FAMILIES OF PLANTS.

SCROPHULARINEÆ —THE FIG-WORT TRIBE.

Corolla usually irregular. Stamens generally four, rarely equal, sometimes two. Ovarium free, two-celled; ovules definite or indefinite. Fruit capsular. Seeds definite or indefinite. Em-

Fig. 256.



1. Digitalis Purpurea. 2. Penstemon Cyananthus.

bryo straight, included within a fleshy albumen. Leaves usually opposite.

These plants are found in abundance in all parts of the world,

Fig. 257.



Paulonia Imperialis.

from the coldest regions in which the vegetation of flowering plants occurs, to the hottest places within the tropics.

The fig-wort is very common on the sides of ditches, and may be easily detected by its deep green leaves, and dark purple flowers. The root has a number of knot-like protuberances growing upon it, which, to an imaginative eye, bear some resemblance to the swellings which characterize scrophulous disorders; hence its Latin name, *scrophularia*. In this family the flowers are of an irregular shape. In some instances the corolla is so folded as to be likened to the visage of some animal, as may be seen in the yellow toad-flax, or the snap-dragon, often found growing wild upon old garden walls. In the names of these plants there seems to be an allusion to the manner in which the corolla opens, as fancy might liken its so doing to the mouth of a dragon or a toad.

It is by no means necessary that the study of this family

Fig. 258.



Orobranche.—The Broom-rape.

should begin with an examination of the *scrophularia nodosa*, for the *digitalis purpurea*, or fox-glove (fig. 256, 1.), which grows in almost every garden, will answer the purpose quite as well. This flower, whose hardiness and beauty have so frequently given it a place in our cultivated grounds, is a native of this country, and not unfrequently found in woods. The *penstemon cyananthus*, of which we also give a representation (fig. 256, 2.), is a member of the same family, lately arrived from the Rocky Mountains of America.

Other plants, associated with those now mentioned, demand consideration. Milton represents the angel as purging the visual organs of Adam with "euphrasy and rue," that is, with the well-known garden rue, and a plant equally familiar to many of our country friends, as the eye-bright, *euphrasia officinalis*, and once

esteemed of great efficacy in disorders of the eye. It grows on heaths and dry pastures, with small, pointed, and stiff leaves, and a minute white flower, marked with purple lines. The wild germander, remarkable for its blue flower, with four divisions of the corolla and two stamens, is often seen by grassy road-sides.

Fig. 259.



Gesneria Geroldiana.

The lady's slipper is conspicuous for its yellow flowers, which, in shape, resemble the fore-part of a shoe. Some species of this interesting flower are natives of the country about Conception, in Chili, where they appear in company with other plants belonging

Fig. 260.



Æschinanthus Javanicus.

to this family. For the imagination to give a picture of that country, it must depict an expanse of verdure, vieing in freshness with that of our choicest parks, sloping delightfully into every variety of hill and dale, and studded with clumps of myrtle trees, whose roots are garnished with the lady's slipper, and other kindred plants, not less curious in form, and still more pleasing for the elegance and delicacy of the colours with which they are adorned. An immense number of varieties of the *calceolaria*, the slipper-shaped flower of our gardens, are now in cultivation in

Fig. 26 .



Chirita Moonii.

this country. The *paulonia imperialis* (fig. 257), so called from being dedicated to a princess of the imperial family of Russia, is a tree of the island of Japan, remarkable for the beauty of its leaves, and of its long, blue, and fragrant flowers.

Fig. 262.



Mitraria Coccinea.

OROBRANCHEÆ.—THE BROOM-RAPE TRIBE.

Corolla irregular. Stamens four. Ovarium one-celled, of two carpels. Fruit capsular. Seeds indefinite, minute. Embryo very minute, lodged in a hollow of a fleshy albumen.

Has the reader in passing along a common where the furze grows, or over a gravelly, heathy spot, ever observed springing up among the bushes, a curious brown plant, with a large close spike of gaping flowers, each with a little brown bract under it, with a thick fleshy, brittle stem, knobbed at the ground, and

Fig. 263.



Achimenes Multiflora.

bearing upon it all the way up tapering scales, but no leaves, nor branches? If not, it is well worth a search. It is one of the broom-rapes:—a herb which has nothing green about it;—a parasitic plant, which, unable to draw support from the earth or the air, attaches its roots to some other plant, and derives from

Fig. 264.



Jacaranda Mimosæfolia.

that the nourishment it needs (fig. 258). Its seeds too, which are borne by tens of thousands, will not grow unless they touch the root of furze or heath, or some other plant, but will remain for years, uninjured in the ground, until they gain the required protection and support. As soon as this is done, they run their fibres into the plant, and in a month they attain a foot or more in height, and put forth their curious flowers. *O. rubra*, the handsomest of these plants, has hitherto been discovered only upon

Fig. 265.



Martynia Proboscidea.

basalt and trap-rocks in the Hebrides, and adjacent shores, and near Belfast.

In moist places, where the water is stagnant for a great part of the year, especially in the neighbourhood of heaths and

Fig. 266.



Acanthus Mollis.

common pastures, the louse-wort is found in great plenty. It may be known by its pink-red flowers, and its leaves which are divided into roundish segments. This plant is very common in

many parts of Hampstead-heath, where the neatness of its form, and the frequency of its appearance, have induced many persons, but little interested in botanical pursuits, to enquire by what name it is called. Entering the glades of some shelving wood, a widely branching plant, of a dismal green, with here and there a few yellow flowers, attracts the eye. It is the meadow cow-wheat. And, to take only one more of this family: it shall be the red eye-bright (*cartsia odontites*), which is very common under every hedge-row, and in almost every pasture in many parts of Suffolk. It is a plant about a foot high with many erect branches, and numerous small, narrow leaves, of a dull green colour. The flowers grow in clusters at the top of each branch and are all turned one way. The corolla is of a rosy-red, while the calyx is violet-coloured.

GESNERIACEÆ AND CYRTRANDACEÆ.

Corolla monopetalous, tubular, more or less irregular. Stamens four, rarely two, two being longer than the others. Ovarium partly free. Fruit capsular or succulent, one-celled, two valved. Embryo in the axis of a fleshy albumen. Leaves opposite.

These, generally beautiful, herbaceous plants, bearing flowers, the prevailing colour of which is bright red, are exclusively natives of the tropical parts of South America, and of the West India islands. Of the *gesneria geroldiana*, a magnificent species, we give a representation in fig. 259.

The *æschinanthus*, of which we give a specimen (fig. 260), is one of some woody plants, climbing, as the convolvulus does with us; and some of them living as parasites, on the trunks of trees, putting forth their flowers, of a bright red or orange colour.

The *chirita moonii* (fig. 261), has its corolla of a pale violet, and its interior adorned with a golden hue.

The *mitraria coccinea* (fig. 262), is a small shrub in Chili, which grows, as a parasite, on the trunks of trees, and has a corolla of a brilliant red.

The *achimenes multiflora* (fig. 263), is a Brazilian species, recently acquired to horticulture. It is remarkable, like all its congeners, for the brilliancy, abundance, and duration of its flowers, which are of a rich purple.

BIGNONIACEÆ.—THE TRUMPET-FLOWER TRIBE.

Corolla hypogynous. Stamens five, unequal. Ovarium superior, one or two-celled; ovules indefinite. Capsule, one or two-celled. Albumen none. Embryo straight, foliaceous. Trees, or shrubs, or rarely herbaceous.

The tropics of either hemisphere are the chief station of these plants. They extend northward in North America as far as Pennsylvania, and southwards, into the southern provinces of Chili. We give the *jacaranda mimosæfolia* (fig. 264), as a specimen of this family.

PEDALINEÆ.—THE OIL-SEED TRIBE.

Corolla irregular. Stamens four, with the rudiment of a fifth. Ovarium, one or two-celled. Fruit drupaceous, or rarely capsular, and two-valved, spurious or many-celled. Seeds few, large, pendulous. Albumen none. Embryo straight.

Found only in the tropics of Asia, Africa, and America, we have much to learn respecting these plants. The illustration we give is the *martynia proboscidea* (fig. 265), a native of the Antilles; its corolla is white, but yellow towards the centre.

ACANTHACEÆ.

Corolla mostly irregular. Stamens mostly two, sometimes with other two or three shorter ones. Ovarium free, two-celled; ovules two, or many in each cell. Albumen none. Embryo curved or straight. Herbaceous plants or shrubs.

This family is common in all tropical countries, and only found beyond them in very hot ones. The general name of these plants denotes that they are armed with prickles. The spring, herbaceous plant, found in various parts of the Levant, is interesting in its associations, from the statement of Vitruvius, that its leaf was the model on which the architects of Greece formed the leaves of the Corinthian capital (fig. 266). The leaves of the *acanthus* grow in a tuft, close to the ground, and sprout annually, and the idea of their application was derived from the following circumstance:—It happened, that a basket covered with a tile, was left upon the corner of the root of an acanthus plant, which, when it began to grow in the spring, finding itself unable to arrange its leaves in the usual manner, turned them up round the sides of the basket, till encountering the edges of the tile, they gradually curved back in a kind of volute. Other leaves, besides those of the acanthus, are employed in the decoration of capitals; those, for instance, in the Composite order of the arches of Titus and Septimus Severus, at Rome, have, from their strong indentations, more resemblance to parsley than to acanthus leaves; whilst those of the temple of Vesta, at Rome, are like the leaves of the laurel. The palm leaf frequently occurs in Egyptian architecture.

THE SISTERS IN ART.

CONCLUSION.

Once settled in a commodious house, with the sculptor's wife as their domestic, and little Angelica as their protegeé, the sisters pursued those several studies for which they had sought Rome. Alice and Esther drew from and studied the master-pieces of ancient sculpture and middle-age art, whilst Lizzy enriched her peculiar knowledge and taste by the study of the priceless treasures in fictile, plastic, and metallurgic art contained in the Gregorian Museum, and that of the brothers Campanace. For there, the tombs of ancient Etruria had been opened and despoiled, and lucky was it that those of wealth and taste had thus gathered and preserved these exquisite proofs of taste and skill in the potter's and bronze-worker's art of a nation nominally extinct and forgotten before the Christian era.

For three years these young women pursued their diligent life, and made marvellous progress. Varying their studies only by occasional excursions to the most classic parts of Italy, for purposes connected with art, or into the cooler regions of the Appenines, when they needed rest and refreshment during the summer heats. They had many friends, some who, as acquaintance ripened, gave signs of intentions more than friendly, but as when they had met at Padua, they had agreed, indeed vowed, to lay aside all mere personal considerations till the great purpose of their study and life was accomplished, namely—the establishment of an advanced School of Female Art in their own country, these intentions were at once ignored, saving in the case of Miss Beaumont, who promised, that when their object at home had realised accomplishment, to give her hand to an eminent English sculptor, who with his mother resided in Rome, and were amongst their most cherished friends. This gentleman, who was some years older than Esther, had worked his way from a position of comparitive indigence and obscurity to one of emolument and fame, and entering fully into the spirit of these noble young women's resolve, not only promised to aid them in every way, but to return to England, and, before and after his marriage with Esther, superintend the department of sculpture in the proposed school.

All at length being accomplished for which they had visited the continent, the study of art and nature, the acquirement of languages, and the collection of such works as their means afforded, the sisters returned slowly on their way home, bringing with them little Angelica, who, now loving them with unbounded love, could well bear her separation from her kindly foster parents. In Paris, where they stayed some days, Alice and Esther made inquiry concerning Guiseppe's daughter, but they found from their artist friend that she had been dead some time. Thus she was gone who had so dishonoured a worthy father, but her image in purity and innocence yet lingered to shame marble, though a masterpiece of its kind, and to pour at last healing waters into the old man's long mourning heart!

At Dover, when they landed, they were met by Esther's father and brother, and good little overjoyed Mrs. Silver, who wept and cried by turns, and to whom at once Angelica took a vast fancy. There was so much to talk about the fine new building now completed and ready, Dr. and Miss Falkland, Lizzy's relatives, old Nancy, and poor Guiseppe, that only by degrees each subject

came to its turn; at length there was time to speak of the poor old sculptor.

"He is sinking very rapidly, I think," said the happy little woman, "for he is almost helpless and very deaf. For some months past he has been at the house at Wimbledon, but yesterday he would be brought to town, and of course to the new house, and what do you think arrived last night in a large packing case?" Alice did not know.

"Why," and the little woman was breathless with what she had to impart, "his famous well known piece of sculpture—'The Child amidst the Flowers,' and he would have it unpacked, late as it was, and carried into the studio which is called yours. And there near it he will sit, he says, and await your coming."

"But I hope, aunt," said Alice, "that he suspects nothing concerning Angelica, for remembering his old sternness on the subject of his daughter; I have never thought it well that it should be broken out to him, till the living beauty and likeness of the child met him face to face."

"I do not think he does, my dear," was the reply; "for, at your desire, neither I nor Nancy have ever spoken of her to him. He expects you, and wishes to give you his only possession of any worth, as a testimony of his regard and reverence."

Alice heard this with eyes filled with tears of gladness, that in return for lifeless marble, the old man would gather in his arms a living, lovely human flower, whose bodily and mental growth she and her noble sisters had watched with maternal care.

But in making this revelation, good little Mrs. Silver reluctantly kept much behind; she only explained so far that Dr. Falkland had taken the utmost interest in the building and the completion of the school of art, and that Colonel Fountains, some weeks before arrived from India, was a daily visitor.

At length, in the wane of the summer evening, they reached town, Dr. Falkland's carriage awaiting the sisters' arrival. As they neared the old neighbourhood, Alice would scarcely look up—so many and so varied were her emotions—but at length it revealed itself, the lofty stone building stretching itself along the street, where once the old curiosity-shop and other dwellings had stood, and it was her own, her offering to Art and Woman's Culture, *her* investment of a prudential portion of a large fortune, instead of in self-luxury and self-aggrandisement. And all that was noble in her own and her sisters' soul sanctified the deed.

Up a wide flight of steps into a lofty hall, lighted from the far-up roof, and with a gallery round, stood old friends to welcome this return. Wilson and his thriving children, the good old Yorkshire schoolmaster, Mrs. Welwyn, Mrs. and Miss Johnstone, and old Nancy, and through the crowding group of these Alice and Esther were presently led by Dr. Beaumont into an ante-room, where waited Dr. and Miss Falkland, and Colonel Fountains, who had purposely remained in London to see his once childish favourite, Alice Law.

I wish I had space to detail what they severally said, but I have not. But they welcomed Alice in a noble manner, with reverence and respect and love. The great anatomist was neither austere nor cold, nor absent in mood, but gave the simple welcome of an admiring, appreciating, and sincere friend.

"I hope," he said presently, "that you will find that the trust you were so good as to repose in me has been rigidly fulfilled, even to a point beyond your own idea, magnificent, really magnificent as it was. But I have been not only guided by my own judgment, by the most able one of Dr. Beaumont here, but also by that of those who with fortune and taste have been much connected with the highest departments of art. For the rest we are largely indebted to Colonel Fountains, as you will see; to the magnificent bequest by Mrs. Cohen, which I was not at liberty to disclose till I saw you personally; to other friends who have contributed a fine geological collection amongst other things; and lastly I have made a contribution, as you will see."

Thus saying, Dr. Falkland led the way over this new Female School of Art. On the ground floor, into class rooms, and a gallery for modelling, and apartments for the resident managers; up stairs into the marble gallery for sculpture, already adorned with Guiseppe's fine casts, then into another with rich things Colonel Fountains had brought from the east, from this into another room which, to Alice's and Esther's wonder and surprise, was filled with the doctor's celebrated anatomical collection, the result of years of labour and cost. Alice, pale and agitated, asked by her looks the question she could not speak.

"Yes," said the good doctor, with a meaning smile that lightened his somewhat austere face, "I thought that if you were so noble, I, at least, must copy so good an example. So here is my anatomical collection with few exceptions. It includes those specimens, too, through your copying of which I was for years considered little better than an ogre or a Bluebeard, and I trust they will be found of long and frequent use to those who will gather round you for the purposes of artistic education." Thus speaking, as he led the way round the noble room, he opened another door, and disclosed another room smaller but richly fitted up with specimens in mineralogy, conchology, and natural history, and from this room opened a library of large extent, already filled with many noble works on art, and ancient, modern, and general literature. On either hand of this grand room—grand in so many senses for the future development of woman's intellect—was a circular room called the "Fictile room," filled almost to overflowing with the splended oriental and other china bequeathed by the Jewess, with the many rare and splended specimens Alice inherited from her uncle, as well as those Etruscan urns and amphora, bronze-work, and other precious things she had from time to time sent to England whilst sojourning on the continent. Altogether it was a matchless collection, and, as Dr. Falkand said, a vast many had already been to see it. From the other side of the library opened a conservatory filled with the richest plants brought from Wimbledon.

Once again in the library, Dr. Falkland directed Alice's attention to a portrait set up in the most conspicious portion of the room. It was her own, dressed in the picturesque painting dress it had been her custom to wear in the studio whilst in Italy; so like her too, so like her in her youth and comeliness, that it seemed herself breathing on the canvass. She looked curiously and inquiringly, for she had sat to no portrait painter as she recollected; but when she fancied she detected a smile on Esther's face, a meaning, earnest, impassioned look on that of Dr. Beaumont, she read the whole secret at once, much that had often been mysterious to her was explained, and for the minute she felt that with her mingled feelings of pleasure, pride, and pain, she must sink to the ground.

"There," said Dr. Falkland, "we will not tax you too much at once, but I dare say the story of the portrait can be satisfactorily explained, and by some one present here. Now, go in there, through that door, the old Italian waits for you, and we will stay for your return."

She was glad to go away, glad to escape from their observation; she went towards the door pointed out to her, opened it quickly, and closed it behind her.

Had she had eyes for other things beside the old man before her, she would have been struck by the exceeding beauty of the room, so beautified by love and care, for it was *hers;* but she saw only the patient, drooping old man, and near him his marvellous work in marble.

He was very deaf, and so did not thus hear her entrance, or know of her presence till she knelt beside him.

"Dear old Guiseppe," she said tenderly, as she lifted one of his withered hands from off the knee on which it rested; "I am so glad to see you. I do so thank God that we have met again."

He shook his head; pointed upwards to his head that he did not hear her; and when he spoke, his voice was so low and gone, as to be scarcely audible even to her quick hearing.

"I can't hear you," he said; "but now I have seen you once more, I shall die in peace—a week ago I did not think I should do so,—for I droop day by day; but I wanted to give you that; yes, *that* (he pointed to the marble), in testimony of my honour for you, and what you will do for art." He strove to rise but could not—finding this, he pointed towards the statue, and held her hand towards it.

Alice made a gesture of reverence, and delight, and joy, and going to the side of the marble, made him see by signs how precious it would be to her.

Then coming near, and speaking in his ear so loud that he could understand her, she told him that she accepted it, and this

with greater joy, because she had something to give him in return.

He shook his head, as though negativing that there were anything in the universe which would make return for *this*.

But she pressed his hands down, as though bidding him wait, and then left the room, and going down the grand and noble staircase, returned with Angelica, her little out-door dress removed by the tender hands of Mrs. Silver, and her fair hair floating round in wavy curls.

Breathlessly Alice led the child into the room, and up to where the old man sat—put both its hands in his—its weaker ones into his furrowed, withered ones—and bidding Angelica be kind and kiss him, for it was the old grey-headed grandfather she had so often told her of, she stooped and spoke loudly to him again.

"I do give you something in return, Guiseppe—the richest blessing which this world holds for you—flesh for marble—life for what has no life—your unhappy daughter's grandchild—*your* great grandchild—one over whose childhood I and my dear Art-Sisters have watched with holy care."

She bid the child speak to the old man in her soft Italian, for though he could not hear her, he would see her moving lips, and bid her cleave to him and kiss him tenderly again. The child obeyed, and as she did so, Alice drew the old man's wondering gaze to the likeness between her and the long chiselled marble.

Guiseppe understood it all; Alice knew he did by the throbs of his deeply-moved heart: then tenderly and fondly he drew the child to his breast, nestled his face upon her hair, and there rested.

For a minute, and another, and another, he never moved, only drawing one deep long breath; then he was still—very still—his face still resting on the child's locks of gold.

Alice spoke loud—he did not answer; she touched him and he did not move; she thought he must have fainted. Bidding Angelica stand still, she opened the door into the library and called in the physicians and Esther.

They came—lifted up the aged sculptor's face; but in his deep joy he had past from earth—he was dead. The smile of his deep gratitude, and love, and comprehension yet lingered on his face—as the glory of the setting sun upon the topmost ridges of a mountain peak!

* * * * * *

As soon as was practicable after Miss Law's return to England, the new Female School of Art and Design was opened to pupils. But there was first to lay down the syllabus of study—a work of large thought and care—and to procure fitting masters for such branches of it as though relating directly, or indirectly, to the advance of art, did not come within Dr. or Mr. Beaumont's programme relating to the general sciences, or their especial province of anatomy, or within the range of those classes for languages, mathematics, botany, and the general principles of art, which the sisters proposed severally to superintend. There was also to settle good little Mrs. Silver, and Angelica, and Nancy in the house at Wimbledon, so as to make it a home for the sisters to go to and fro, when they needed rest and air, or change, or for the future purposes of the school; but for the rest the sisters preferred so to arrange their work and duties, as to make the school their home, and live in reality amidst the art they loved. And good little Mrs. Silver, when she found such to be the case, came so often under many pleas to the school, as to make it quite her home too, and taking Mrs. Welwyn to reside with her as assistant and friend, they together, or singly when either was absent, so ordered matters in the great school, as to give to every room and office the air, the order, and the beautiful arrangement of the most retired home.

The school has now been opened four years, and found to answer in a degree scarcely expected even by the sanguine, noble, earnest, enthusiastic minds of those who first saw the need of such an institution for the advance of female education in relation to art, nor by those who, thoroughly practical efficient men of business, organised its working details. It answers in an eminent degree, because it replies to, as it were, what was a vast need in our time—a true school of art in relation to design, based upon those *a priori* principles of art and education, namely, that art up to a certain point is the corollary of many forms and departments of knowledge, instead of being as heretofore considered in the common art-schools of the country, as consisting of nothing more than in the objective use of the brush or pencil. It answers, because its ministers judge that most forms of knowledge are portional to art; that mathematics, geometry, anatomy, geology, general science, botany, and acquaintance with modern languages, tend in their acquirement and results, negatively as well as in use, to the development of art based on high and comprehensive principles; and it answers, because such are methodically taken in its course of study. It answers, because it aims to professionally educate woman for a formula of art especially her own—that of design. It answers, because it permits of no use of brush or pencil without correlative attainment (if not already attained) of some, or the whole, of these assisting clauses of general cultivation; and it answers, because it opens to all women of good character, of whatsoever age and position, these vast advantages. It answers, because it has been founded on the consideration that light, air, space, beauty, comfort, convenience, as means to ends, educate as well as those more immediately considered as educating agents; and thus the beautiful building, the pictures, the statuary, the fictile shapes, the library, and the conservatory, are points of attraction in this noble Female School of Art. And, lastly, it answers, because women, true to the great needs of their age, have risen themselves up out of old formulas, unselfishly to teach their sex, and lead them on the angel-way of human good.

It is rumoured, and, I believe, truly, that Alice is engaged to Dr. Beaumont, Esther to the English sculptor already referred to, who has now returned to England, and occasionally lectures in the art school, and Lizzy to the eldest son of an eminent English potter. But for the present they remain together teaching and working—sisters in love and unity—as SISTERS IN ART.

TO MY SISTER.

DEAR SISTER!—while the wise and sage
Turn coldly from my playful page,
And count it strange that ripened age
  Should stoop to boyhood's folly;
I know that thou wilt judge aright
Of all which makes the heart more light,
Or lends one star-gleam to the night
  Of clouded Melancholy.

Away with weary cares and themes!—
Swing wide the moon-lit gate of dreams!
Leave free once more the land which teems
  With wonders and romances!
Where thou, with clear discerning eyes,
Shalt rightly read the truth which lies
Beneath the quaintly masking guise
  Of wild and wizard fancies.

Lo! once again our feet we set
On still green wood-paths, twilight wet,
By lonely brooks, whose waters fret
  The roots of spectral beeches;
Again the hearth-fire glimmers o'er
Home's white-washed wall and painted floor,
And young eyes widening to the lore
  Of faery folks and witches.

Dear heart!—the legend is not vain
Which lights that holy hearth again,
And, calling back from care and pain,
  And death's funereal sadness,
Draws round its old familiar blaze
The clustering groups of happier days,
And lends to sober manhood's gaze
  A glimpse of childish gladness.

And, knowing how my life hath been
A weary work of tongue and pen,
A long, harsh strife, with strong-willed men,
  Thou wilt not chide my turning,
To con, at times, an idle rhyme,
To pluck a flower from childhood's clime,
Or listen, at Life's noon-day chime,
  For the sweet bells of Morning!

GEOFFREY CHAUCER.

Geoffrey Chaucer is one of the triumvirate of great poets who flourished in the middle ages. The other two were Italians, Dante and Petrarch. The British bard is justly styled the father of English poetry; but in order to justify his title to that glorious distinction, and to trace his influence on our literature, it is necessary to glance at its condition in the times previous to the age in which he lived. Mr. Wright, in his recent work, "The Celt, the Roman, and the Saxon," has thrown some new light on the sources of the English language, as well as on the races which make up our present cosmopolite population, probably the most mixed in the world. During the long dominion of the Romans, the upper classes of the towns consisted of Roman legionaries, who settled here when their term of service was ended. Of these there was a constant succession. They came from all parts of the empire; from Asia and Africa as well as the south of Europe. They mingled with the mass of the Celtic population, and their practice of polygamy enabled them to diffuse foreign blood extensively through the social system. The Roman towns, the bulk of whose inhabitants must have been Britons, who improved rapidly by contact with the civilised settlers, retained their municipalities after the fall of the empire, and there municipalities survived even under the feudalism of the Saxons and Danes,—who themselves preferred a country life, and despised the urban industry by which they profited. Hence the fact recorded by Mr. Wright, that the "Antiquities of Anglo-Saxon Paganism are derived almost entirely from their *graves*." This would not have been so if their power predominated in the towns.

The Venerable Bede states that three languages were spoken in England in his time, the Latin, the British, and the Anglo-Saxon. Had the Romans been a majority in the towns, the Roman dialect, a corruption of the Latin, must have prevailed here as well as in the south of France. Instead of this, Latin enters into our language only in single words, which conform to the regimen of the stock on which they are grafted. That stock is the Saxon, but greatly modified by the British. It has been satisfactorily shown that the English language has characteristics to which no analogies can be traced in any Latin or German dialects, but which are found in the modern



GEOFFREY CHAUCER.

Breton, Gaelic, and Manx, and are thus proved to be of British origin. The predominance of the Saxon element in our language is accounted for by the fact that the British, long a subjugated race, had no taste for the cultivation of literature. During the three centuries of Roman domination no author of eminence appeared among them—a striking proof of the debasing effect of conquest—for the genius of a nation perishes with its independence and its freedom.

It was different with the conquering and ruling Saxons, whose life of wild adventure and free enjoyment was powerfully calculated to excite the passions, whose appropriate language is poetry. For, in the ruder ages of the world, minstrelsy has ever been the handmaid of heroism. Where great deeds are done, they are sure to be sung. The muses are hero-worshippers. Next in honour to the chief was the minstrel who celebrated the exploits of his ancestors, already clothed in a mythic garb, and admitted to a supernatural hierarchy, in which it was the great ambition of their living representative to win the place promised him in the flattering strains of the poet, who, with his harp, soothed or excited at will the passions of the warriors who surrounded him in the festive hall. The minstrel, indeed, was their only educator and historian, and from him they learned to speak in poetry. "The poet or minstrel," says Mr. Wright, "was held in high esteem among the Saxons. His genius was looked upon as a birthright, not an acquired art, and it obtained for him everywhere the respect and protection of the great and the powerful. His place was in the hall of princes, where he never failed to earn admiration and applause, attended generally with advantages of a more substantial nature." There the chief joy was the wonted minstrelsy, the absence of which was a sure sign of sorrow and distress. In the words of Beowul

"There is no joy of the harp—no pleasure of the musical wood."

Sometimes the "glee-men" went about wandering through many nations, telling their tales of wonder, singing their songs of praise, and ever meeting with some noble thane, "unsparing of gifts." They celebrated the virtues of courage, generosity, and fidelity, pouring their denunciations without stint on the coward, the niggard, and the traitor, and always mentioning woman with the tender respect never wanting in the heart of the true poet.

Such was the literature which the Saxons brought to England, which found here a genial soil. The subjects of their songs were either mythological or historical facts. The songs were committed to memory, and handed down from age to age, forming a body of mythological poetry, which held the same place in our national literature that the Iliad or Odyssey did in Greek literature.

This literature was superseded, to a large extent, in the public mind by the religious poetry introduced by the Mission aries; of which, however, no manuscripts in the Saxo- language are found earlier than the reign of Alfred the Great, in the middle of the ninth century. Though delighting in the Latin language, which they carefully cultivated, the Christian teachers availed themselves diligently of the Saxon, in order to instruct the people. For two centuries before the Norman conquest this language underwent little change. After that great revolution, its use, as a written language, was superseded, partly by the Latin introduced by the foreign ecclesiastics, some of whom were highly distinguished for their learning; and whose successors maintained it in a flourishing condition till the thirteenth century. But the vernacular dialect of the conquerors was Anglo-Norman, or corrupted French, which was not laid aside till the middle of the fourteenth century,—when Chaucer began to write. Owing to these influences, the Saxon language had degenerated, through neglect, and was treated with contempt as the vulgar dialect of the "rude Lowlabry"—the vile commonality who had been reduced to serfdom and slavery. In the middle of the thirteenth century, the pure Saxon was scarcely understood, and the language that had taken its place in common use, has been called "Semi-Saxon;" while that which prevailed from this period till Elizabeth's reign, has been called "Middle English."

One great cause of the decline of the Norman was the separation of England from Normandy, by the conquests of Philip Augustus. Norman poets, and literary men, from that time began to pay less frequent visits to the English court. As soon, also, as a taste for literature began to spring up among the lower classes, the burgesses and priests, they were driven to cultivate the Saxon tongue, from the difficulty they experienced in expressing their ideas in a language which was not their own. These authors, drawn from the lower classes, were distinguished by their esteem for the labouring classes, peasantry, millers, or innkeepers. The Norman minstrels, on the other hand, treated men of this class with the utmost contempt. Their heroes were all *puissant barons, noble dames, gentle knights and damsels.* The English, on the contrary, took plebeian adventures for the subject of their tales, such as those of Peter Ploughman. Chaucer was one of the principal poets of this class. Their leading characteristic was hatred for the Norman language, and for those who used it. In the romance of Arthur and Merlin, this is expressed as follows :

"Right is that Inglishe, Inglishe understond
That was born in Englond :
Freynshe use this gentilman
As everich Inglishe can."

Chaucer also contemptuously contrasts the French which the Norman nobles spoke,—antiquated, uncouth, and impure —with the graceful French spoken at Paris.

"And French she spake full fayre and fetisly
After the scole of Stratford atte Bowe,
For French of Paris was to hir unknow."

Bad as it was, the French of the nobles had the advantage of being spoken in a uniform and regular manner, while the English of the same period was rude and disjointed, and made up of idioms and combinations of Norman and Saxon, which differed in every province, and even in every town. Chaucer even appears to be apprehensive, that owing to this multiplicity of dialects, his book would not be understood out of London, and prays God, that it may be comprehended by all who read it.

"Read where so thou be, or elles sung
That thou beest understood, God I beseech."

Every individual, according to his fancy, or the degree of knowledge which he possessed of each of the two languages, borrowed phrases, and combined in an arbitrary manner whatever words first presented themselves to his memory. In general, each man sedulously introduced into his conversation the little French that he was master of, in order to imitate the great, and have the appearance of a person of distinction. The two languages were often combined in the same poem, changed every alternate couplet, and sometimes at every second line.

The Semi-Saxon then mixed with Gael, Latin, and Norman-French; full of irregularities, undisciplined by grammar, was the rude instrument with which the genius of Chaucer had to work.

Geoffrey Chaucer was born in London, in the year 1328. He was married to a sister of Catherine Swinford, maid of honour to Philippa, the queen of Edward III. Catherine was first mistress, and afterwards wife of John of Gaunt, and this connexion attached the poet to the Lancaster party, in whose vicissitudes his own fortunes were involved. In his thirty-ninth year he received a pension from the king of twenty marks, equal to £200 or £300 of our present currency. Five years later he received the title of *scutifer*, or esquire. Edward showed the estimation in which he held the man who sustained the literary reputation of the country, by appointing him as a joint envoy to Genoa, with Sir James Provan and Sir John de Mari. At this time he lived in affluence and splendour, a favourite at court, respected by the nobility, maintaining a generous hospitality in his own house; in person, as he tells us, "fat and jolly," and enjoying a share of happiness which rarely falls to the lot of poets. This state of things continued during Edward's reign. In 1374, he got a grant of a pitcher of wine daily. The next year the king

gave him the wardship of an heir, which was worth £104, and soon after a quantity of forfeited wool, worth £71; sums which then represented fifteen or twenty times the value that they do at present. In the last year of Edward's reign he was one of three envoys sent to France, to negotiate a marriage between Richard, Prince of Wales, and a daughter of the French king.

During the reign of Richard II., Chaucer was involved in great disasters. He was implicated in a seditious movement in London, headed by John of Northampton, a Wycliffite, who, in politics belonged to the Lancasterian party. In consequence of this, he was compelled to leave the kingdom, proceeding first to Hainault, then to France, and last to Zealand. His pension, however, was not taken from him, and he was even permitted to hold by deputy, the office of comptroller, which he had received from the late king. While abroad, he impoverished himself by liberality to his fellow-fugitives,—and those who had charge of his property at home embezzled it,—his partizans having treacherously become his enemies, and doing all they could, he said, to make him perish by absolute want.

In 1388, we find him a political prisoner in London, compelled to dispose of his pensions—all that his persecutors had left him. As a necessary condition of his release, he made disclosures concerning the late conspiracy. To this he says, he felt bound by his "leigiaunce," by which he was charged on his "kinge's behalfe." In 1389, the Duke of Lancaster returned from Spain, and became once more his warm and steady protector. He was appointed Clerk of the Works at Westminster and Windsor, with a salary of £360 per annum. After about two years, he resigned these offices, and retired to the country, probably to Woodstock. It was there, in his 66th year, that he began to compose his immortal "Canterbury Tales," the greatest of his works—a remarkable instance of the vigour of genius surviving to the verge of three-score years and ten. In 1394, he received a pension of £20 per annum, equal to £300 or £400 of our money; and in the last year of Richard II. he had assigned him, as a token of royal favour, a tun of wine yearly. In 1398, he obtained a *patent of protection*, "*Contra æmulos suos*,"—which are supposed to mean his creditors, whose dunnings must have seriously interrupted the great old poet's meditations, and disturbed the inspirations of his muse.

A year and a half after this, Bolingbroke, son of John of Gaunt, ascended the throne as Henry IV. The new king continued the annuity of the poet, and added a pension of 40 marks. But he did not long remain to enjoy the favour of the house of Lancaster. He died on the 25th of October, 1400. He was buried in the South Cross Aisle of Westminster Abbey. For 150 years, the greatest poet which England had ever known had no monument to mark the spot where his ashes lay. At length this disgrace was removed from the national character by Nicholas Brigham, a gentleman of Oxford, whose admiration of the works of Chaucer induced him to erect a monument in Westminster Abbey at his own expense.

It has been remarked by Thomas Campbell, that Chaucer has a double claim to be regarded as the founder of English poetry. He was the first to use the despised English language as the vehicle of spirited representations of life and manners; and was also the first great architect of our versification, having introduced the heroic measure of ten syllables—"the new and stately fabric of English numbers," which Dryden and Pope adorned with such exquisite beauty.

Dryden ascribes to Chaucer the first refinement of our numbers, the first production of easy and natural rhymes, and the improvement of our languages by words borrowed from the more polished language of the continent. Skinner, on the other hand, censures him for having vitiated his native speech by "whole cart-loads of foreign words." Dr. Johnson pronounces both these judgments to be unjust; alleging that Gower, Mandeville, and Colville, who were his contemporaries, wrote with equal correctness; and that his important troop of French words was not greater than was customary with good writers in the infant state of the language. From the charge of Skinner he has been fully vindicated by Tyrwhitt.

When a language has arrived at maturity, foreign words that may be required are easily assimilated. Like a new clerk in the Bank of England, or a new hand in a cotton factory, it is instantly controlled by the established system—of which it forms a part, and to whose laws it must submit. But where many of the hands must necessarily be strange, the task of the manager becomes more difficult; such unquestionably was the case with Chaucer. He was a man of large experience and keen observation. He had known all the vicissitudes of life in his own person,—opulence and poverty, court favour and exile, popular applause and factious animosity, a happy home, and the horrors of a prison, and the agonies of debt. He had studied the manners of his own country, and had looked with interest on the various phases of life on the continent. He had noted all, and in bodying forth what he had seen and felt, with a sharpness of outline, and a vivid reality, in which he has been scarcely surpassed by Cowper or Crabbe; he must often have found the scanty vocabulary of his native language defective. He added to it, therefore, not rashly or ignorantly, but with taste and judgment. He used his materials with a plastic hand, and wrought them into symmetry and beauty. He grafted and pruned till he produced a tree covered with loveliest blossoms, and bearing the sweetest fruits.

He was only nineteen years of age when he ventured to innovate so far as to write a long poem in the heroic couplet. This is the "Court of Love," referring to a tribunal which existed in the ages of chivalry, before which cases of casuistry relating to the tender passion were debated by both sexes, and decided by the goddess of love. His "History of Troilus and Cresseide" was the delight of Sir Philip Sydney, and, next to the "Canterbury Tales," was the most popular poem in England till the age of Elizabeth, notwithstanding its great length and simplicity. "The Flower and the Leaf," modernised by Dryden, has been pronounced by the poet Campbell "an exquisite piece of fairy fancy," having "an air of wonder and sweetness, an easy and surprising transition that is truly magical." Pope has, in like manner, given "The House of Fame" in modern dress, with some improvements. While in prison, the poet commenced his "Testament of Love," an allegory, in which he relates his griefs to the goddess of love. His last and greatest work, which was not published till after his death, is his "Canterbury Tales," in which he gives the adventures of twenty-nine pilgrims, who met at an inn in Southwark, on their way to the shrine of Thomas a'Becket. Each pilgrim tells his own story, after the manner of the *Decameron* of Boccaccio. The following lines from the prologue will show the state of the language at the end of the thirteenth century:—

> "And specially fro every shire's end
> Of England to Canterbury they wend,
> The holy blissfull martyr for to seke,
> That them hath holpen when that they were sick.
> Befell that in that seson on a day,
> In Southwark, at the Tabberd as I lay,
> Redy to wendin on my pilgrimage,
> To Canterbury with devote corage,
> At night were come into that hostery,
> Wele nine-and-twenty in a company,
> Of sundry folk, by aventure yfall
> In felaship; and pilgrims were they all,
> That toward Canterbury wouldin ride."

He then proceeds to tell the condition, degree, and array of each of the pilgrims, before reciting their stories. In their language, dress, manners, modes of life, thoughts, feelings, experiences, and adventures, we have presented to us a picture of society in the thirteenth century such as we should look for in vain in any history. The people live and move before our eyes. For Chaucer was pre-eminently the poet of reality. He did not ethereal ise what he saw before him, but painted characters just as they were. If he did not excel in grandeur of conception, or of language, and if in his moralising moods

he was languid and diffuse, his rich genius and humour poured themselves forth in comic satire and merry narrative, while his airy numbers moved along with delightful grace and gaiety,—all combined with descriptive power of the first order.

In the *Edinburgh Review* (June, 1815), there is a fine parallel drawn between Spencer and Chaucer. The critic says, "It is not possible for any two writers to be more opposite than Spencer and Chaucer. Spencer delighted in luxurious enjoyment; Chaucer, in severe activity of mind. Spencer was, perhaps, the most visionary of all the poets; Chaucer the most a man of observation and of the world. He appealed directly to the bosoms and business of men. He dealt only in realities; and, relying throughout on facts or common tradition, could always produce his vouchers in nature. His sentiment is not the voluntary indulgence of the poet's fancy; but is founded on the habitual prejudices and passions of the very characters he introduces. His poetry, therefore, is essentially picturesque and dramatic; in this he chiefly differs from Boccaccio, whose power was that of sentiment. The picturesque and the dramatic in Chaucer are in a great measure the same thing; for he only describes external objects as connected with character as the symbols of internal passion. The costume and dress of the Canterbury Pilgrims,—of the Knight, the Squire, the gat-toothed Wife of Bath,—speak for themselves. Again, the description of the equipage and accoutrements of the two kings of Thrace and Inde, in the 'Knight's Tale,' are as striking and grand as the others are lively and natural. His descriptions of natural scenery are in the same style of excellence; their beauty consists in their truth and characteristic propriety. They have a local freshness about them, which renders them almost tangible; which gives the very feeling of the air, the coldness and moisture of the ground. Nature after all is the soul of art,—and there is a strength in the imagination which reposes immediately on nature, which nothing else can supply. It was this trust in nature and reliance on his subject which enabled Chaucer to describe the grief and patience of Griselda—the faith of Constance—and the heroic perseverance of the little child, who, going to school through the streets of Jewry,

'Oh, alma Redemptoris mater, loudly sung,'

and who, after his death, still triumphed in his song. Chaucer has more of this deep, internal, sustained sentiment than any other writer, except Boccaccio, to whom Chaucer owed much, though he did not owe all to him; for he writes just as well where he did not borrow from that quarter as where he did, as in the characters of the pilgrims; the Wife of Bath's Prologue; the Squire's Tale, and innumerable others. The poetry of Chaucer has a religious sanctity about it, connected with the manners of the age. It has all the spirit of martyrdom!"

The same eloquent writer well remarks, that the *chefs-d'œuvre* of genius—of incommensurable power—have always leaped at once from infancy to manhood. The greatest poets, orators, painters, sculptors, have been the most ancient: "Homer, Chaucer, Spencer, Shakespeare, Dante, and Ariosto (Milton alone was of a later period, and not the worse for it), Raphael, Titian, and Michael Angelo, Corregio, Cervantes, and Boccaccio—all lived near the beginning of their arts, perfected, and all but created them. These giant sons of genius stand indeed upon the earth; but they tower above their fellows, and the long line of their successors does not interpose any object to obstruct their view, or lessen their brightness. In strength and stature they are unrivalled, in grace and beauty they have never been surpassed."

Yet it is strange that these heroes of the pen, their quiet conquests on the fields of thought, the revolutions which they effect in national literature, their influence on society, and the blessings they confer on posterity, are so seldom and so slightly noticed by the historian. The splendour of courts, the array of armies, bloody battles, the strifes of parties, the rise and fall of politicians and tyrants—these are the staple of history; while the men who illumine the dark valleys of life with the light of their genius, who scatter broadcast the seeds of truth, from which posterity reaps a perennial harvest of purifying, elevating, and consoling thought, are almost forgotten. Chaucer, for example, delighted and instructed England for two centuries—as the bright morning star of that glorious literature whose day broke with such splendour in the Elizabethan age—and yet his name is scarcely mentioned in the popular histories of England. Strange, that even in the nineteenth century of the Christian era, the world should still worship the warrior as its only *hero*—recognising divine lineaments in the destroyer, and ignoring them in the creator and benefactor, as if the evil principle was the deity of Christendom, and the homage of men was inspired only by their fears!

THE CURIOSITIES OF ANTIQUITY.

HAND RINGS.

By a number of persons the pursuits of the antiquary are looked upon with but little consideration, and his seemingly dry studies thought of small consequence in comparison with matters of progress and the concerns of every-day life. To look to the past with a view towards present improvement is not however a useless task. "*In old things there are new*" is a well-known proverb, the truth of which is made evident by the frequent discovery amongst the remains of past ages, of objects not only useful to the historian, architect, and artist, but of deep interest to all.

In the present series of papers, it will be our endeavour to illustrate such rare fragments of the past as are either remarkable for their means of application to present use, or, which show the progress of civilisation, or explain the old manners and customs of our country. With these few lines of preface we will at once proceed with our subject.

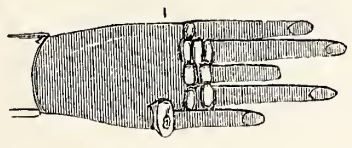
Rings of metal and various other materials are found amongst the art manufactures of various nations in different parts of the world; from Egypt, Nineveh, Babylon, Ancient Greece, and other places of the past, we have specimens of hand rings adapted to the uses of all classes; and, at the present time, over the known surface of the earth, their use is almost universal; the Queen on the British throne, the Irish applewoman, the luxurious dwellers in the East, and the savage natives of the Sandwich Islands, are all in the use of this familiar ornament, which has amongst us become a symbol of one of our most solemn engagements.

Amongst the ancient Egyptians, upwards of 4,000 years since, rings for the fingers and thumbs were in general use, and are several times alluded to in the sacred writings, as tokens of authority and good faith. In Genesis, xli. 41, 42, is the following passage: "And Pharaoh said unto Joseph, I have set thee over all the land of Egypt. And Pharaoh took off his ring from off his hand, and put it upon Joseph's hand, and arrayed him in vestures of fine linen, and put a gold chain about his neck."

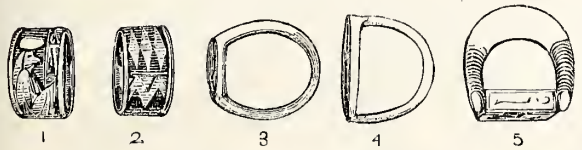
The extensive use of rings amongst the ancient Egyptians is also shown by the number and variety which have been discovered, and by representations on their monuments, mummy cases, &c.

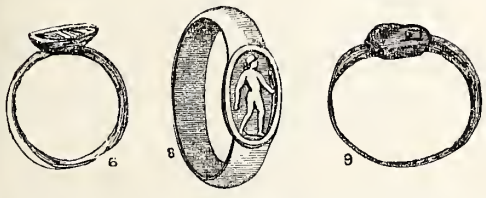
The Egyptian women wore many rings, sometimes two or three on the same finger; the left was considered the hand peculiarly privileged to bear these ornaments, and it is remarkable that its third finger was decorated with a greater number than any other, and was considered by them as by us, *par excellence*, the ring finger, though there is no evidence of it having been so honoured at the marriage ceremony. On the case which contains the mummy of a priestess of Amen-ka, now in the British Museum, there are 8 rings on the fingers, and one on the thumb of the left hand (see engraving No. 7), and two on the fingers, and one on the thumb of the right hand. Some of the Egyptian rings were simple, others were made with a scarabæus, or an engraved stone, and they were occasionally in the form of a snail, a knot, a snake, or some fancy device; they were mostly of gold or silver, brass Egyptian rings are, however, occasionally met with, and also a

description of porcelain rings for the use of the lower classes. (Gold and silver Egyptian rings, see engravings, Nos. 3, 4, 5; porcelain rings, Nos. 1, 2.)



Some of the Egyptian signets were of extraordinary size. Sir Gardner Wilkinson mentions an ancient Egyptian signet which contained about twenty pounds worth of gold—it consisted of a massive ring, half an inch in its largest diameter, bearing an oblong plinth, on which the devices were engraved—on one face was the successor of Amunaph III., who lived B.C. 1400; on the other, a lion, with the legend, "lord of strength," referring to the monarch; on the other side a scorpion, and on the other a crocodile.



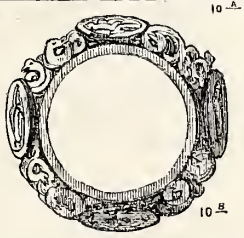


At the time of the meridian and decline of the glory of the Roman empire, the use of rings became such a passion, that the practice is written against by several of their philosophers; and it is said, that some of the Roman ladies, although their fingers were mostly covered with rings, made a practice of not using the same on a second occasion.

"Rings," says Brand, in his Popular Antiquities, "were used anciently by the heathen in making agreements, grants," &c.; and, no doubt, were introduced by the early Christians amongst primitive people to render more sacred the important celebration of marriage.

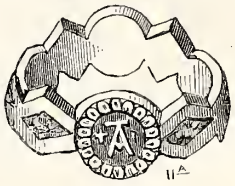
Rings were, however, in use in the British Islands before the introduction of Christianity—we find them in different parts of England, Ireland, and Scotland—some in the barrows and graves of those who first here practised the rude dawnings of art and civilisation. Other rings have been found which are supposed to have been connected with the religious services of the Druids, and many, which are a portion of the visible evidence remaining at our day of the Roman and Danish occupation of this country.





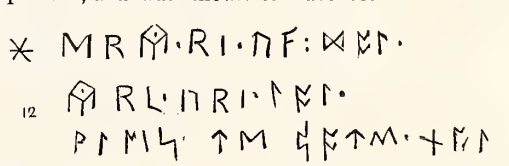
The Anglo-Saxons, at an early period, were eminent as workers in gold and silver, and exported, even at that remote time, their productions to different parts of the world. It is supposed, that this skill was partly acquired by the visits of the early Christians, skilled in the arts of Italy, and who not only instructed them in the principles of art, but also left objects of beautiful workmanship for imitation; the rings (Nos. 10 A, 10 B, 11 A, 11 B), are of this period. The letters on No. 11 A, read—"Athstan," and possibly had belonged to Athstan, bishop of Sherburn, born 817 to 867.

Rings, throughout the middle ages, were greatly in use amongst the nobility, clergy, &c. The ring formed a portion of the consecration service of kings, bishops, and abbots, and in the two last-mentioned instances was the finishing portion of the ceremonial. On the effigy of King John, in Worcester cathedral, a ring is placed outside the glove on the second finger of the right hand, and on that of William of Colchester, are rings on the third finger of each hand.





Rings, during this period, besides being used for the purposes of marriage, dignity, and business, were often looked upon as being possessed with magical properties. The following inscription in the Runic character (see No. 12), on a jasper ring, was exhibited several years since at the Society of Antiquarians, and was shown to have been a Dano-Saxon



amulet against the plague; the translation has been given by Mr. Hamper in the "Archæologia," as follows:—

> "Raise us from dust we pray to thee,
> From Pestilence, O set us free,
> Although the Grave unwilling be."

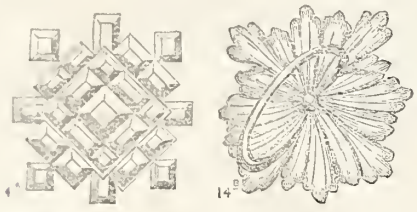
On another ring, inscribed with similar characters, and evidently intended for the same purpose, the legend is as follows:—*Whether in fever or leprosy, let the patient be happy, and confident in hope of recovery.*"

The use of talismanic rings appears to have been in great and general use amongst the ancients—as charms against disease, personal danger, witchcraft, &c. Medicated rings were also believed to cure divers complaints, and to counteract the effect of poison, &c. The ancient physicians and empyrics were much addicted to the process of attempting to cure diseases by charms of various kinds, and this practice was much in fashion amongst the medical professors of the Middle and Lower Roman empire—in whose works we trace the most ridiculous receipts. Trallian, a physician living in the fourth century, cures the cholic and all bilious complaints by means of an octagonal ring of iron, on which eight words are to be engraved, commanding the bile to take possession of a Turk, &c. &c.

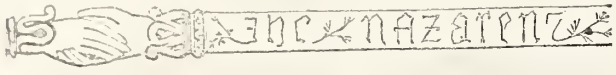
Michaelis, a physician at Leipsic, had a ring made of the tooth of a sea-horse, with which he pretended to cure diseases of all kinds. Rings of lead mixed with quicksilver were used against headaches, and even the chains of criminals, and iron used in the construction of gibbets, were applied to the removal of various complaints. The very beautiful

diamond ring (No. 14 A, 14 B) was found some time since in the county of Westmeath in Ireland, amongst some very ancient remains. This ring would seem not to be so old as the objects by which it was surrounded.

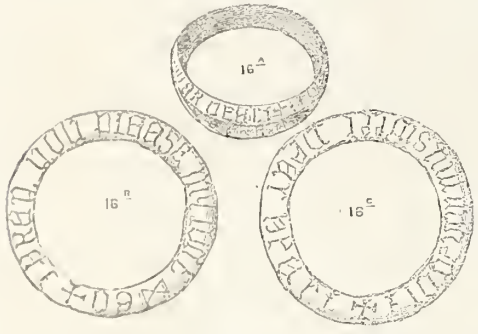
In former times wedding-rings in use in England were frequently ornamented with some motto or device, mostly of



a religious character, such as Jesus the Nazarene (No. 15). These rings were mostly ornamented with clasped hands, crowns, hearts, &c. On the wedding-ring (No. 16 A, 16 B, 16 C) is

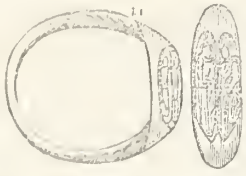


inscribed. "+ I love you my sweet dear heart, ⋈ Go + I pray you please my love." On another gold wedding-ring (No. 17), is the figure of St. Catherine with her wheel, being an emblem of good fortune; and another figure, probably St. Margaret with the Church, an emblem of the constancy of

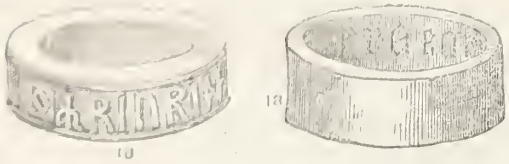


her faith, wisdom, and fortitude, without which qualities the marriage state too frequently fails of happiness: the motto underneath is, "De bon coer" (Be of good heart).

Gentlemen's rings of the olden time are often decorated with



carving of the crucifixion, effigies of saints, &c., and sometimes with quaint mottoes. On a thumb ring (No. 18) is the following: "Quant Dieux Plira Meleour Serra" (When God does send, the times shall mend).



The betrothal of a young couple was formerly attended with considerable ceremony, a portion of which was the exchange of rings. Shakspere alludes to this in the play of Twelfth Night. The priest, who had been privy to the betrothal, is charged by Olivia to reveal the circumstances, which he does in the following lines:—

> "A contract of eternal bond of love
> Confirmed by mutual joinder of your hands,
> Attested by the holy close of lips,
> Strengthened by the *interchangement of your rings;*
> And all the ceremony of this compact
> Sealed in my functions, by my testimony."

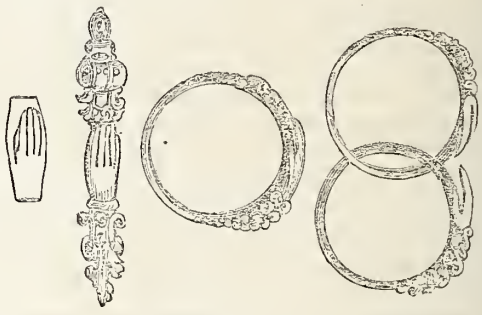
On the occasion of betrothals, a ring called a Gimmel was frequently used, and often alluded to by the writers of Queen Elizabeth's time. These rings were so constructed that they might be worn separate, and afterwards joined together, and were most probably used by the contracted parties at the time of marriage. The construction of the Gimmel ring will be understood by referring to the engraving (No. 21,) although it



may not be out of place to give the following description of one, by Dryden, in his play of Don Sebastian:—

> "A curious artist wrought 'em—
> With joints so close as not to be perceived;
> Yet are they both each other's counterparts?
> (Her part had Jaun inscribed; and his had Laydor;
> You knew those names were theirs) and in the midst
> A heart divided in two-halfs was placed.
> Now if the rivets of those rings, inclosed,
> Fit not each other, I have forged this lie,
> But if they join, you must for ever part."

The engraving of mottoes on wedding rings, most probably,



began to go out of use in England about the time of the Reformation. This we cannot but regret; and will conclude by suggesting, for the adoption of any of our readers who should



intend to revive the old fashion, the following lines by Herrie:—

> "And as this round,
> Is no where found,
> To flaw or else to sever,
> So let our love
> As endless prove,
> And pure as gold for ever."

GOETZ VON BERLICHINGEN.

We left the aged Goetz in his castle, writing his memoirs, tired of a life of inactivity, and casting looks of regret and impatience upon his arms hanging against the wall. George, his faithful squire, and Lerse, one of his best soldiers, partake of his ennui, and go a hunting to kill time. One day, on returning to the chateau, laden with game, they began to relate to the knight the rumours of war which they had heard in the neighbourhood. The peasants had risen in insurrection, and were committing dreadful ravages through all the country round. Dread omens—fiery swords crossed—had been seen in the air; Goetz grieves over his being pent up thus, while his friends were in the field, and perhaps suffering loss and injury. His followers added fuel to his ardour, and from this temptation to the actual mounting, lance in hand, there was no great distance. The peasants, after having killed, ravaged, burnt the castles and villages, thought at last that they should provide themselves with a leader whose name and character would give a colour of legality to their violence and rapine. They therefore sent a deputation to Goetz, who at first, however, hesitated. He had promised the emperor not to take arms, and he feared to break his parole. But this excuse did not satisfy the peasants, and he persuaded himself that he could do a service both to the emperor and his country if he could turn the revolt to some useful purpose, and put an end to the brigandage of which it was made the pretext.

"Why have you taken arms?" said he to the deputation, "to regain your rights and liberties? Very well; what mean these pillagings and burnings by which you have laid waste the country? Are you resolved henceforward to abstain from crime, and act as men who know what they aim at? If so, I am ready to support your pretensions and become your leader."

The peasants readily made the required promise, but they were not long in violating it, and no sooner did Goetz find himself in their midst, than he began to repent bitterly of the step he had taken.

He is, however, drawn anew into the melée, pursued by the troops of the League; he was wounded, and escaped with difficulty; he arrived, greatly exhausted, at a gipsy camp in the depth of a forest. This is the scene depicted in our third engraving.

SCENE VI.

(Enter Goetz on horseback.)

Goetz. I thank thee, God! I see fire—they are gipsies.—My wounds bleed sorely—my foes are close behind me!—Great God, this is a fearful end!

Captain. Is it in peace thou comest?

Goetz. I crave help from you.—My wounds exhaust me—assist me to dismount!

Captain. Help him!—A gallant warrior in look and speech.

Wolf (aside). 'Tis Goetz von Berlichingen!

Captain Welcome! welcome!—All that we have is yours.

Goetz. Thanks, thanks!

Captain. Come to my hut! [*Exeunt to the hut.*

SCENE VII.

Inside the Hut.—Captain, Gipsies, and Goetz.

Captain. Call our mother—tell her to bring bloodwort and bandages. (*Goetz unarms himself.*) Here is my holiday doublet.

Goetz. God reward you! [*The mother binds his wounds.*

Captain. I rejoice that you are come.

Goetz. Do you know me?

Captain. Who does not know you, Goetz? Our lives and heart's blood are yours.

Enter Sticks.

Sticks. Horsemen are coming through the wood. They are confederates.

Captain. Your pursuers! They shall not harm you. Away, Sticks, call the others: we know the passes better than they. We shall shoot them ere they are aware of us.

[*Exeunt Captain and Men-gipsies with their guns.*

Goetz (alone). O Emperor! Emperor! Robbers protect thy children. [*A sharp firing.*] The wild foresters! Steady and true!

Enter Women.

Women. Flee, flee! The enemy has overpowered us.

Goetz. Where is my horse?

Women. Here!

Goetz (Girds on his sword, and mounts without his armour) For the last time shall you feel my arm. I am not so weak yet.

[*Exit.—Tumult.*

Women. He gallops to join our party. [*Firing.*

Enter Wolf.

Wolf. Away! Away! All is lost.—The Captain is shot!—Goetz a prisoner. [*The women scream and fly into the wood.*

His death in the prison is well described:—

SCENE XIII.

The Prison at Heilbronn.—Goetz and Elizabeth.

Elizabeth. I entreat thee, dear husband, speak to me. Thy silence alarms me; thy spirit consumes thee, pent up within thy breast. Come: let me see thy wounds; they mend daily. In this desponding melancholy I know thee no longer!

Goetz. Seekest thou Goetz? He is long since gone! Piece by piece have they robbed me of all I held dear—my hand, my property, my freedom, my good name! My life! of what value is it to me? What news of George? Is Lerse gone to seek him?

Elizabeth. He is, my love! Be of good cheer; things may yet take a favourable turn.

Goetz. He whom God hath stricken lifts himself up no more! I best know the load I have to bear.—To misfortune I am inured.—But now it is not Weislingen alone—not the peasants alone—not the death of the emperor, nor my wounds—it is the whole united.—My hour is come! I had hoped it should have been like my life. But His will be done!

Elizabeth. Wilt thou not eat something?

Goetz. Nothing, my love! See how the sun shines yonder!

Elizabeth. It is a fine spring day!

Goetz. My love, wilt thou ask the keeper's permission for me to walk in his little garden for half an hour, that I may look upon the clear face of heaven, the pure air, and the blessed sun?

Elizabeth. I will—and he will readily grant it.

SCENE THE LAST.

The Prison Garden.—Enter Goetz, Lerse, and Keeper.

Goetz. Almighty God! how lovely it is beneath thy heaven! How free! The trees put forth their buds, and all the world awakes to hope, —Farewell, my children; my roots are cut away, my strength totters to the grave.

Elizabeth. Shall I not send Lerse to the convent for thy son, that thou may'st once more see and bless him?

Goetz. Let him be; he needs not my blessing, he is holier than I.—Upon our wedding-day, Elizabeth, could I have thought I should die thus!—My old father blessed us, and prayed for a succession of noble and gallant sons.—God, thou hast not heard him. I am the last.—Lerse, thy countenance cheers me in the hour of death, more than in our most daring fights: then, my spirit encouraged thine; now, thine supports mine—Oh that I could but once more see George, and sun myself in his look! You turn away and weep. He is dead? George is dead?—Then die Goetz: Thou hast outlived thyself, outlived the noblest of thy servants—How died he? Alas! they took him among the incendiaries, and he has been executed?

Elizabeth. No! he was slain at Miltenberg! while fighting like a lion for his freedom.

Goetz. God be praised! He was the kindest youth under the sun, and one of the bravest.—Now release my soul. My poor wife! I leave thee in a wicked world. Lerse, forsake her not! Look your hearts more carefully than your doors, The age of fraud is at hand, treachery will reign unchecked. The worthless will gain the ascendancy by cunning, and the noble will fall into their net. Maria, may God restore thy husband to thee! may he not fall the deeper for having risen so high! Selbitz is dead, and the good emperor and my George — Give me a draught of water!—Heavenly air! Freedom! freedom!

[*He dies.*

Elizabeth. Freedom is above! above—with thee! The world is a prison-house.

Maria. Noble man! Woe to this age that rejected thee!

Lerse. And woe to the future, that shall misjudge thee! *

The beautiful close of the drama is not, however, altogether in

* Scott's Translation. Bohn's Standard Library.



GOETZ AIDED BY THE GIPSIES.

conformity with historical truth. Goetz, disgusted by the cruelties committed by the peasants, and which he was unable to prevent, abandoned them. He was, however, arrested by order of the emperor as a rebel, and imprisoned for two years at Augsburg. At the end of that period he received permission to return to his own castle, upon giving his word of honour as a knight not to go



DEATH OF GOETZ.

beyond his own estate, and not to take up arms on either side under any pretext whatsoever. He remained inactive for two years, after which, Charles V. released him from his engagement; Goetz, transported with joy, followed the emperor into Spain, France, and the Low Countries, returned into Germany, and died at Jaxthausen, on the 25th of July, 1562.

HOW THE HEBREWS AMUSE THEMSELVES.

The dark, cold winter evenings are creeping upon us. The year is withering down to winter. Merchants and clerks returning from the city to their "suburban retreats" (as the advertisements describe those neat, quiet squares, and trim, uniform terraces, crescents, places, abounding in all the outskirts of London), begin to shake themselves into their great coats, and air their muffiers, decline to ride outside an omnibus, and let down the glasses of the Hansom cabs. In those quiet homes of theirs, curtains are drawn close, bright fires are kept up, shaded lamps shed their softened light on the table arranged for the evening meal, and brisk little maids, with their quaint caps just holding on to their hair-knot, wait in a fidgetty impatience for "master's" ring at the gate-bell.

The evenings are cold and foggy, through which the dim street-lamps shine like spectral fires. The pavements are clogged with a greasy, slippery mud, to the great exasperation of hasty wayfarers, who yield with a bad grace to the inexorable necessity of patience. The shops and wares have a yellow, dingy look, and the shopmen stamp up and down behind the counter, chafing their hands. Unaffected by atmospheric influences, the careless errand-boys go whistling along, or gape in the picture-shop windows with an enviable unconcern; they are not yet disenchanted, for them the world has yet great store of wonders and delights. This dull, russet weather out of doors has a bright domestic lining;—friendly converse, calm enjoyments, cheerful gatherings together, love-makings, and sweet rest; but to us at this time it belongs to look on other realities less lovely, less endearing. These long, cold, dismal evenings come to many thousand families with no in-door compensations; often, indeed, the cold, bleak weather without is warmer, cheerier than that within. The labouring poor dread them, and dismally look forward to them with a pitiful, bewildered "God above knows how we shall get through the winter." The terrible winter, when children shrink shivering to their litter with gnawing and unsatisfied hunger, and cry themselves to sleep,—when worn, wan women scheme and plan to make a penny go as far as sixpence at another time,—when the workman walks the streets with envy and half-desperation, weary and heart-sick with the day's long, fruitless tramp in search of a job. The sad winter, when miserably clad women squeeze in at the passage door of the pawnbroker's shop with little bundles under the corners of their ragged shawls, —pawn-shops, where the little decencies and comfortable clothing which the summer's toil sufficed to purchase, go one after another, till the walls are bare, and the clothes-box empty, and the rent unpaid, no coals for the fire, no bread for the meal, feeble sobbings of children, mute wasting of wives, stern savageness of men. Hard winter, devouring up the summer's surplus, how fearfully it begins to look into poor men's homes; with what frost-biting, foreboding glance it peers on the lowly households; how these early nipping nights darken there, where the good housewife with her little ones, fresh, clean, and noisy, all around her with their dear distractions, spreads the table, lays the tea-things, sets the chairs, the eldest girl meanwhile toasting the bread with a sense of importance; in another minute he enters, the black-visaged, rough mechanic, catching up the young creatures who tug at his garments, and clamber on his knees. The tremulous, anxious look clears off from the wife's face as he gives into her hand the week's wages, and says no word of being "off," but with huge appetite turns to the smoking meal. Not alone to the actually poor is winter terrible, and its approach dreaded, but also to the whole class of workers, to nearly all of whom it is a time of scarcity, insecurity, and uneasiness. The provisions which working men make for its encounter, though not wholly unknown to us, are not matters for introduction here. We do know that most trade clubs levy a voluntary poor's-rate on themselves to provide for their unfortunate members in winter, and deserve at least parish-gratitude therefor.

Now are the evenings when tavern-parlours fill with their [illegible] of long-tried men for the quiet game at whist, or a song [illegible], while the smoke eddies from the long clay pipes, and the [illegible]-faced chairman cracks his fat jokes and passes the toasts. Now the dirty skittle grounds resound with the blows of the bowls, and the wild oaths and horrid speech of those dehumanized animals who quarrel, cheat, and cozen there. Now the ragged sin-embruted outcasts of our state congregate in their strange dens, and hold their foul debauch. Now the miserable daughters of degradation, with their painted haggardness and tawdry finery, hang round gin-shop doors, or flaunt their misery along the pavements. Ragged, trembling children stand begging, whom a half-drunken Scotsman, gazing at them with glazed eye, pithily denominates "Puir wee whusky deevils,"—as in truth they are.

We wend our way, not unobservant of these strange presentments, through the long busy thoroughfare, crowded with lumbering omnibuses, rattling cabs, slow waggons, empty porter drays, carts, and barrows; past vast, brilliant shops, where cheap clothes are sold (not forgetting the tailor's garret where such garments are made); past enormous piles of buildings, with huge stars of gaslights illuminating the front of the edifices, where the orgies of intemperance are held by the rough and strangely-garmented crowd; past the clean and tempting butter-shops; past boot and shoe marts, where the foot-clothing of the multitude hang outside the window from ceiling to sill in a prodigal confusion; past the gay and brightly-painted pie shops, the envy of the lads who have no pence; two happier ones coming out with theirs in their hands looking like baked oyster-shells—one remarks, with all the gusto of a connoisseur, "I likes them pies, Jem, they're ever so much greasier than yer gets in our street." By-and-bye we turn from the main road. Here stalls line the pavements, with flaring, smoky oil-lamps hung on poles above them, apples ranged in rows of pennyworths, old books, prints, and pamphlets, oyster-stalls, toffee-stalls; "Ten a penny walnuts," "Pies all hot," "Your height and weight for a halfpenny;" basket sellers, tin-ware men, crockery-ware men, old umbrellas. The shops are also of a different character. Barbers' shops, with painted poles projecting; dark, dirty coffee-shops; old tool shops, loaded with all kinds of saws, axes, hammers, chisels, vices, planes, trowels, old guns and pistols, fishing-rods, telescopes, and such-like gear, surmounted by a cornice of travelling-bags and old trousers. Shops we see packed from floor to roof with unfinished chairs; next door a penny show, "Poses Plastiques," which, if they resemble these Egyptian-like daubs on the showboard, must be by no means plastique. Now, down a narrower street, where the little low-roofed shops bulge out into bow-windows, where tailors and shoemakers sit at work, and where chandlers disclose their heterogeneous stores, we come out suddenly upon the three great lamps and the wide portals of the saloon, "Licensed by the Lord Chamberlain,"—such entrance as is usual, high and wide, and made to be crowded, made for throngs and crushes. Wherein does a saloon differ from a theatre, since from the playbill we see nothing special? There are boxes, pit, and gallery, the prices are not lower than several of the theatres; namely, sixpence to the pit, and fourpence to the gallery. We shall see. Passing the barrier we become warned, by the presence of several determined-looking men in great coats, with stout sticks in their hands, that we have arrived at those confines of society, where order must be preserved by force, and where peace relies not on any common sentiment for its maintenance, but on the strong arm of power. Such a savagery there is in the very heart of our civilisation, an untamed barbarism, an element of internal danger. We find our way into a seat near the front, whence we may survey the people. The house with some deviation from the usual theatrical architecture is well adapted to accommodate, or at least to contain great numbers at low prices. There are no tiers of boxes, and apparently no necessity for them. The very large gallery occupies the space. The general aspect of the fittings is not displeasing; true, the bare brick walls at the side and back of the pit and gallery, are by no means ornamental, nor the square timber props which serve as pillars to support the roof; in amends for which, the place is well lit up, and not very ill-ventilated, perhaps not worse than the new House of Commons. The decorations are of a chaster and simpler character than our experience would lead us to expect. The scenery is well-painted and well managed, if we may make allowances. Withal there is a well-worn look about the whole, as is only likely to be.

The orchestra, moreover, is better, both in arrangement and performance, than the average.

Curiosity leads us into strange company sometimes. We are in the midst of the Israelites, crushed between two of them, with the knees of another in our back, and the wide expanse of shoulders and bonnet of a Jewish lady in front of us. Looking around, we perceive that three-fourths of the people in the pit are of the same race. They are all well-dressed, though with a peculiar mannerism of costume. The brims of all the hats are quite flat, and set very much on one side of the head; the waistcoats are cut very low, and the coat sleeves very wide at the wrist; they wear large rings, which look like gold, and thick Albert chains, which may be genuine, but ———. They are mostly young men and women, though here and there are family groups, pleasant to behold, for they seem to enjoy themselves, and are on good terms with themselves and each other. The young men have thick, curly, black hair, well oiled, and very shining. One or two of the young women are beautiful, with ripe complexions, and round luxuriant forms. The strong national lineaments render them easily distinguishable. The pit is scarcely full, but behind it and under the gallery is a space penned in by a strong barrier. Here the price is only threepence, and it is crammed with a mass of human beings closely packed, compacted together. There is a large proportion of boys and girls. Rough men, rude-mannered, coarse in look and language, beneath whose rugged brows, not the less, we catch here and there bright glances of intelligence, round whose lips we mark many a genial laugh-wrinkle. Those large paw-like hands, resting on the barrier, covered with knotted veins and brown with toil, have, not ignobly, this past week, done some of the world's work, paving the way for future generations.

These are hands, rightly fit for the rough wrestle with nature, whereby man's dominion is secured, and in virtue of which hard combat, we master and retain the services of those elements which were the scourges and the dread of our forefathers. Honour to these men, and no ignoble curving of the disdainful lip. It is true that their backs are bent with bearing the weight of the world on them, till stooping is their habit, so that their eyes are ever earthward, and they cannot straighten themselves to look up to Heaven; but we must have some reverence for these strong Caryatides who sustain the temple-dome of humanity, for there is in them the dignity which all honest work bestows on all honest workers. We hear and see much of their vices, very little of their virtues, their frankness, courage, honesty, and patient endurance. Is there not some glimpse of these in the thought, that these Samsons continue to grind corn quietly, and do not lay their hand to the pillars to pull down destruction on us all.

The gallery also is full, but not crowded; there are as many women as men up there, mostly young ones, with hard bold faces, who we may suppose have to work, and to work hard, for their living, and so in that indurating process lose the softness and gentleness which we so much prize in the feminine nature.

Bonnets and shawls are thrown off. The considerations and restraints of conventional manners do not exist here; evidently, however, the men consider themselves the women's protectors, and would very readily smash those hard fists into any one's face, who offered what their code of manners would account an insult to the women in their company.

Babel noises, there are of course, loud, shrill-whistling, rude jests enough, stamping of feet, and shouts of "up with the rag." Crushing past us without ceremony, five or six bricklayers, with lime-spotted hats and loose white coats, force themselves forward and get seats in front; youths with bull-dog faces, especially one in a dirty straw hat and ragged coat, squeeze in and get shaken down somewhere. The performance commencing, we note the immediate and sudden earnestness with which these long rows of faces set towards the stage. We have seen worse acting in places of larger pretensions and far higher charges, and we are not here to be critical on these points. The piece is one of "thrilling interest,"—a working man, urged by want and under pressure of immmediate temptation, prevails on his wife to commit a murder; she consents, and after its perpetration, falls on her knees and tells us all that she is a murderess. Hereupon there follows much common-place remorse, and plotting; the corpse is committed to the river, and the murderer reclines and sleeps. Slowly, to very low music and distant singing, there emerges from the back of the stage the head of the murdered woman—gradually she rises, and gaining the level of the stage, comes gliding on a sliding board forwards to the sleeper, and lays her hand on his arm, whereupon he wakes, stares, gasps, screams, and falls in a heap, whilst the ghost glides slowly back again as if quite satisfied, and disappears. This ends the first act. There was the most intense silence during this scene, the most eager watching with held breath and wrapt gaze, and the drop fell amidst tremendous applause. This is just what the people like; they come here to be "worked up" with a horror, they have a new sensation in it, they want something vehement and startling to stir them up; they pay for it, and they get it. This is not true teaching; but they do not come here to be taught, they come to be excited, to be amused.

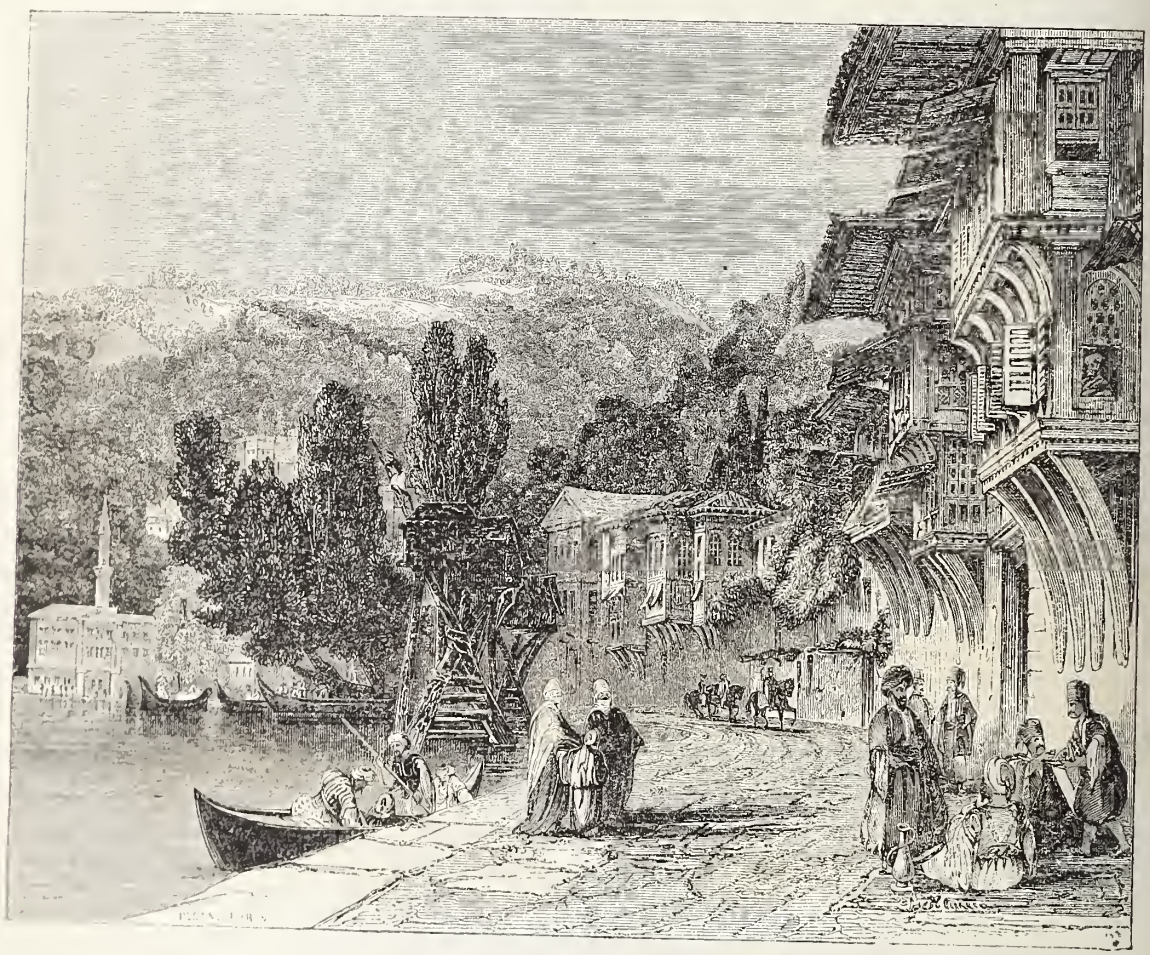
Now the half-price commences, as our battered hat and thumped and crushed sides can testify; for a heedless rush, an avalanche of men and boys, women and girls, obstreperous and irrespectful, comes tumbling amongst us, filling every available cranny of space, a noisy, distracting addition to our numbers and subtraction from our convenience. The loud talking and laughing of the new-comers does not readily cease, and the first scene of the piratical melodrama is a mere dumb show. We have in this scene a perfect picture of the stage tar, with large black whiskers, long pigtail and curly wig, hitching up his waisthand, and continually shivering his timbers, and telling people to sheer off, very fond of fighting and grog, and very emphatic in declaring that "a British tar never sees a lovely woman in distress without lending her a hand." There is a great deal of fighting, and hammering of cutlasses together, a grand explosion of gunpowder, red lights and death-struggles, with which the patience of our gentle readers shall not be taxed. The evil moral teaching of the piece lies in the fact, that the sympathies of these listeners are enlisted in favour of a law-breaking smuggler, who does not hesitate to commit crime, and is only accidentally prevented from cold-blooded murder, and who lays the blame of his own misdeeds on Fate and the Laws, and dies heroically after killing his enemy by strangulation. This is not harmless amusement; this is dangerous perversion, and tells with a bad effect on these unrestrained and untaught people who applaud it so genuinely. It is a serious matter, that more than a thousand inflammable and not reasoning natures should have this false picture placed before them; it gives us pain, and suggests fear.

The scene being over, the two soldiers, who must be in barracks by ten o'clock, rise and vacate their seats. The young fellow in the dirty straw hat rushes to take their place simultaneously with a Jewess and her little boy: there ensues some pushing. A Jewish youth interferes instantly, two or three more come tumbling over the people's heads to the scene of contention. One of them, a slim smart young man, pushes Straw Hat aside, a blow is struck, our young Jew dashes in quick as lightning, a space is cleared as by magic, all the people jump on the seats, women shriek and cry; with the rapid skill of practised pugilists, the combatants ply their blows, Straw Hat gets his head "put in chancery," and blood gushes freely. Two minutes have scarcely passed before they are separated by those men with the stout sticks, who force their way through and march them both off in custody, torn, battered, and bleeding, and the audience settles down as if it was nothing unusual. This, we observe,—that there was fair-play in the tussle, there was no two on one; also we take a lesson which shall serve us for meditation on our homeward way, for the coarse buffoonery of the next piece, which opens with a man riding on to the stage on a donkey, and grimacing horribly at the audience, is rather too much for us. These despised, distrusted Jews, who have no one's sympathy, and no one's assistance, maintain their ground, and have done so for centuries, till they have made themselves recognised and feared amongst us, and are even likely soon to have some seats in the house of collective wisdom; they have won this security and position by a close league among themselves for mutual aid and mutual protection, these descendants of the patriarchs have a strong practical brotherhood, whereof we have just seen a small

proof; they know the folly of isolation, and owe their strength and security to their closely-linked co-operation. In like manner, do the Mohammedans in China secure their independence, and dare to defy the laws of the Celestial Empire, not that they are numerous, but that they are united. Were it not wise that, for nobler and unselfish ends, we should learn something from their policy; that such of us as cannot endure to think that this coarse harsh life, with its want of domestic comforts and the sweet charms of home, should be left to a neglected rankness of growth, till it becomes foul and feverous in its hopeless stagnation that we who hold our gifts and influences in stewardship fo those who need them, should learn to link ourselves into a hol companionship of true hearts,—for these evils are legion, an their causes strike like deep roots of mighty trees into the bosom of our State, and it is vain, or almost so, for us to travel forth on our warfare, without plan, discipline or assistance. Meanwhile, may we meet approval whilst we strive to carry our torch-light into these realms of night and chaos.

BALBEC IN SYRIA.

Balbec is one of the most astonishing collection of ruins in the world, and presents some of the most strikingly beautiful architectural remains. The platform, on which is raised a temple to Baal, or the sun, contains stones more than sixty feet long, twenty-four feet thick, and sixteen broad, each containing 23,000 cubic feet. This magnificent temple, according to the tradition of the natives, was built by Solomon. Columns are still remaining, each seventy-two feet in height. On a large stone are inscribed these words in Latin, *Divisio Mosei*, on which a learned traveller says, he knows not what interpretation to bestow. But the glory of Balbec has departed. Thrice he returned to visit this splendid vestige of antiquity; and on the last of these occasions, being well escorted, he proceeded to the distance of about a mile, to the foot of the mountains of Damascus, whence the stones employed in its construction were brought. He measured the stone which remained there, and which has been already noticed as having been intended for the fifth in the construction of the wall. it had been hewn out on all sides, was lying on the ground, and was simply attached to the rock at the inferior part. Its length and dimensions were such, that he could not conceive how it would have been possible to detach it, and still less with what machines to move, transport, and raise it to the height at which the other stones are placed, more especially as the sites,



VIEW OF THE VILLAGE OF BALBEC.

the roads, and the masses of rock are such, as to exceed in asperity whatever the imagination can picture to itself.

Our engraving represents a modest village in its neighbourhood, which preserves the name of the grand old ruin. At the commencement of the eighteenth century, the population of Balbec was 5,000; in 1733 it was not more than 2,009; in 1784 Volney computed its people at 1,200, and that number has since been reduced to 200. There are several Christian Arabs at Balbec, and the rest of its inhabitants are Ishmaelites. The village is a poor one, and the houses are chiefly built of wood, but have a very picturesque aspect. The promenade on the quay is planted with trees, and this, together with elegant boats, the eastern costumes, the clear transparent water flowing on its course, make up a pleasant picture, strangely different from the mysterious ruin, the origin of which yet remains unsolved.

FLORENCE.

ITALY is in a transition state, and the monuments of the past accord but oddly with the evidences of modern civilisation. Only the monasteries and convents remain in their pristine state; all else is changing, in spite of old associations and imperial sway. Rogers, in his beautiful poem on Italy, remarks this curious fact—

> "From their retreats, calmly contemplating
> The changes of the earth, themselves unchanged;"

and no visitor to Italy—or indeed, any part of Roman Catholic Europe—can fail to have noticed the singular phenomenon of large communities of men and women, who, content to live in separation and exclusion from the world, yet perform their part in the world's business by simply adhering to the customs and manners common to the religious of an age no longer existing in other shapes than those of history and tradition.

These are facts full of meaning, and very suggestive. From the land whence the light of civilization spread itself over all the world—a land long hidden under a cloud—that light is again reviving in a form and with a purpose which its rulers will do well to study and understand. From the land,

> "Where Cæsars deigned with revellers to reside,"

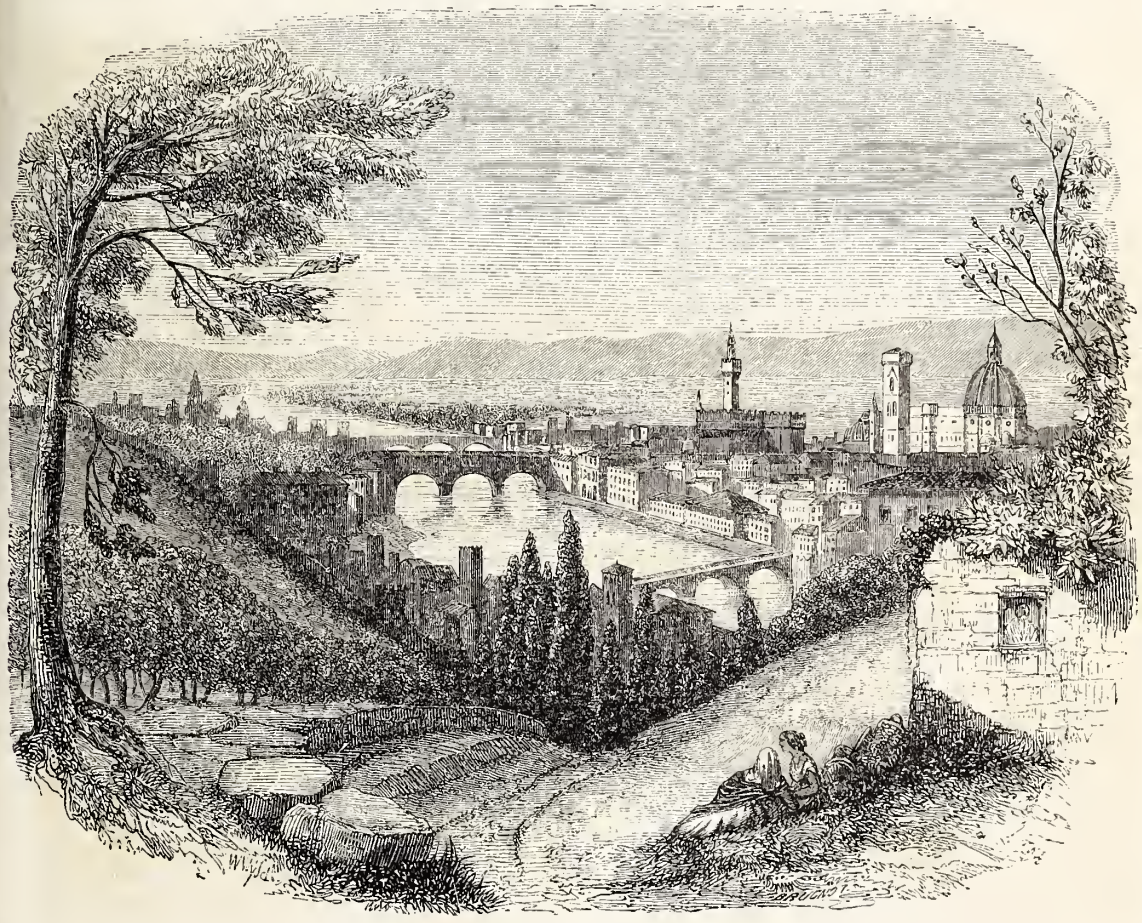
is coming forth a new spirit and a new hope, which cannot much longer be silenced or put down. Though still, in the autumn, troops of poor ignorant peasants, on their road home from the vineyard, may be encountered,

> "Singing some national song by the wayside;"

other songs will be sung, and other thoughts will enter into the minds of men, than those which have hitherto contented the dwellers in that smiling land. That much abused word "progress" is beginning to be understood in the Italian peninsula, despite the efforts of Prince and Pope.

But a glance at the picture at the head of our rambling paper reminds us, that instead of getting political we should endeavour to be descriptive; and so, without attempting or pretending to anything like Gazetteer exactness, we may briefly allude to a few facts concerning the city which claims to be the most beautiful in Italy. Florence—as most of our readers, doubtless, know already—is the capital of the Grand Duchy of Tuscany, the ancient Etruria, and is pleasantly situated—to use the stereotyped but very expressive phrase—on the river Arno, which flows

> "O'er many a rocky height"



FLORENCE, VIEWED FROM SAN MINIATO.

from the Appenines. Its history, like that of most classical cities, is a varied one. First founded by the soldiers of Sylla, it was embellished and enlarged by the triumvirs, destroyed by Sohla, rebuilt and beautified by Charlemagne, and is now the residence of the Grand Duke and an improving population. The environs are beautiful, rich, and populous, and contain a large number of villas and country-houses. The circumference of the city is about seven miles, and the city proper, is fortified by walls and ditches. The present population may be said to consis of about 80,000 inhabitants, the greater part of whom are engaged in agriculture and the manufacture of the silks for which the neighbourhood is famous.

Florence well deserves the name of "beautiful;" for though the streets are narrow, and the squares are far from wide, they are filled with imposing-looking palaces in white marble, and

churches of historical value, and statues of no mean proportions or ungraceful forms, and fountains which bubble and sparkle, and send forth a refreshing coolness into the sometimes too sultry air. Florence, too, is enriched with a fine library, and one of the most complete cabinets of gems and bronzes in Europe. In it, and also in the private collections of many Florentine nobles, may be seen the master-pieces of Benvenuto Cellini in many a varied shape of sculptured marble, graven gem, and fretted gold—to say nothing of the famous "Perseus" of this great master in the Loggia dei Lanzi, or the bronzes in the Palazzo Pitti, the residence of the Grand Duke.

And then the fine old paintings. Great names, famous names shine out from pictured canvas on the walls of the Corsini Palace and the Florentine Gallery; Titian's "Venus," Raphael's "St. John," Da Vinci's "Medusa," Murillo's "Mother and Child," Salvator Rosa's "Conspiracy of Cataline," Guido's "Cleopatra," Michael Angelo's "Fates," Carlo Dolce's "St Peter,"—these are only a few of many world-known performances of those earnest truth-seeking old masters. Nor are the works of the moderns neglected in this city of palaces; for, in the midst of numberless beautiful specimens of the pietra-derra manufacture, for which Florence is so celebrated, and near to cabinets inlaid with variegated marbles and precious stones, stands the "Venus" of Canova, acknowledged to be the most complete realisation of ideal female loveliness ever executed in what is called the present age. And the churches; who can gaze on the fine proportions of that fair Gothic pile, the Santa Croce, without feeling within him something of the spirit which is said to move the devotee in presence of the holy cross? Who can walk along those aisles beneath whose marble floor repose

> "Angelo's, Alfieri's bones, and lies
> The starry Galileo with his woes,"

and not feel he is on consecrated ground?

But there is another aspect in which this picture, as well as all others, may be gazed on. "Fair Florence," says Mrs. Carleton, "stands first of all Italian cities for badness of climate and company. It is cold in winter, hot in summer, and damp at all times." This, though rather severe, is certainly very much like the truth; and it is a fact, that the much-lauded climate of central Italy is the very nursing-mother of rheumatisms, catarrhs, and consumptions, for at least five months out of the twelve. And then, as to

> "Sunny skies of deepest, spotless blue,"

why, if the truth must be told, they are very hot and very unhealthy days when such skies are overhead; and the most enthusiastic poetaster in all Italy is glad at such times to retreat to the narrow streets where the tall houses throw a welcome shade over the hot white pavements, or to sit in the cool of the dismal public room of his hotel and play at dominoes!

Of the weather in the winter-time in Florence, we may just quote a sentence from Dr. Lee's "Continental Travels." "In winter, the weather is much colder than at Rome or Pisa; the transitions of temperature are great and sudden, and rain frequently falls in torrents. The wind sweeping over the Appenines is sharp and piercing, while, at the same time, the sun is often inconveniently felt; and in less than a minute the change from summer's heat to winter's cold may be experienced."

For the sick of Florence there are hospitals, and for honest poverty there is a society of wealthy persons—the Societa della Misericordia—which has for its object the assistance and sustenation of those, and they are many, who are too poor to live and too proud to beg. By the members of this society the sick are tended, the maimed are healed, and the dead are buried. It was instituted in the fifteenth century; and what it was four hundred years ago, it is now. The names of its members, although they belong to the noble of the land, the clergy, and the manufacturers, are kept inviolably secret; and when a sick man is removed from his house to the hospital or the grave, he is carried on a litter, the bearers of which, masked and disguised in long black cloaks, go silently and silently on their way, with the air of inquisitors rather than that of messengers of charity and mercy! When Young Italy comes into power, these, and many other mummeries of the past, will vanish away!

A VISIT TO ABBOTSFORD.

It was on a fine morning in the early part of August that we started from the Tweedmouth Station, by the Kelso Branch Railway, on a visit to the classic and picturesque locality of Abbotsford. Everyone has heard of Abbotsford, so rich in its associations and reminiscences of the author of "Waverley;" and it is under the impression that this short sketch will meet the eye of many of the admirers of Scott, who have not had the opportunity of visiting for themselves the family mansion of the poet, we have now taken up our pen.

Moving out of the station, we leave the famous old town of Berwick on the right, with its mouldering walls and well-sheltered port, and its stout old bridge, which for so many generations has *sustained* the communications between England and Scotland, but which is now looked down upon by its lofty competitor, the Royal Border-bridge, which stretches with graceful and majestic sweep across the vale of the Tweed, and which has bound these communications more firmly by the triple chain of iron, of electric, and locomotive power. Leaving them behind us, we roll onward through fields of golden grain, waving listlessly to the breeze, whilst on every side the reapers were busily engaged, and large patches of corn were cut and already in the "stooks."* The lofty Cheviots rose upon our left, and, as their towering summits caught up the bright rays of the morning sun, the whole extent of the range appeared in fine panoramic perspective as we swept along their northern border, until they gradually disappeared in the dim distance. Passing by the modern ruin of Twizel, beneath which the ancient bridge is still standing by which the English crossed the Till before the battle of Flodden, stately Norham appears upon our right, its noble remains overhanging, in picturesque magnificence, the banks of the Tweed, which glances at intervals like burnished silver amid the trees. The ruins of Norham are extensive, and its massive towers still bid a bold defiance to the ravages of time. This once noble fabric is beautifully described in the first canto of "Marmion." Hurrying onward, we pass through that rich and fertile tract of country generally known as Tweedside. Passing Kelso, with its fine old abbey in the early Norman style, "with rounded arch and tower square," and steaming onward, the high hills of Eildon, the ancient Tremontium of the Romans, appears in view. Like three gigantic ant-hills, the three cones rise from the surrounding country, forming a most peculiar feature in the landscape. At the foot of the eastern hill is situated the town of Melrose, where we must leave the railway carriage, and proceed onward on foot. Melrose, the *Kennaquhair* of Sir Walter Scott, is celebrated for the remains of its once famous abbey, which affords the finest specimen of Gothic architecture and Gothic sculpture ever reared in this country. It owes much of its present celebrity to Sir Walter, who describes it so charmingly in his "Lay of the Last Minstrel." It was through its cloister-arches that the Monk of St. Mary's-aisle conducted William of Deloraine to the grave of the Wizard:—

> "Slow moved the monk to the broad flag-stone,
> Where the bloody cross was traced upon."

The abbey is built in the usual form of a Latin cross, with a tower in the centre. Its fine proportions and its beautiful decorations do ample justice to the glowing descriptions of the poet; and although it may not possess the wide extent and the lofty majesty of the abbeys further south, yet it stands unsurpassed and unrivalled for beauty of design and delicacy of execution. The stone of which it is built, though it has withstood the elements for so many ages, still retains its perfect sharpness, and the most minute ornaments are as perfect as when newly from the sculptor's hand. The friezes, pediments, and cornices, are finely decorated with clustering flowers, plants, and other natural objects, the beautiful combination and execution of which are the wonder and admiration of all beholders:—

> "Nor herb nor floweret glistened there
> But was carved in the cloister-arches as fair."

Leaving Melrose, after a pleasant walk of about three miles we arrived at Abbotsford. It is beautifully situated on the banks of

* Stooks—local term for corn-ricks.

the Tweed, amidst the most enchanting scenery. Afar off on a distant hill may be seen the remains of the tower of Smailholm, where in his childhood Scott spent many years with his grandfather, and where he listened with attentive ear to many a wild tale and ancient legend, and to which he refers in his introduction to "Marmion:"—

> "Thus while I ape the measure wild
> Of tales that charmed me yet a child,
> Rude though they be, still with the chime
> Return the thoughts of early time;
> And feelings roused in life's first day,
> Glow in the line and prompt the lay."

It was here that the foundation was laid for his "Border Minstrelsy;" it was here that the impulse was received that bore him onward to a successful career; and he has in a measure paid off the early debt of gratitude, by clothing the old tower with poetic and romantic associations in his beautiful ballad "The Eve of St. John." The whole district round about is celebrated in story and in song; the broom-covered tops of the Cowdenknowes peep out from the surrounding hills, the grey Lammermoors appear in the distance, whilst Ettrick-vale and Teviotdale, Galawater and the "dowie dens of Yarrow" are all clustered round the mansion of the Great Minstrel, adding not only to the beauty of the situation, but also to the poetic and romantic associations with which they are severally baptised. Viewed from a distance the appearance of Abbotsford is magnificent in the extreme, a perfect "romance in stone and lime," as its noble owner was wont to term it, "one of his ain castles reduced to reality." Without pretensions to any particular form of architecture, it partakes largely of the Gothic and baronial type, whilst it presents examples of the beauties of every style combined and united in the truest taste, and forming in their combination a graceful and harmonious whole. A short avenue with a gentle descent leads from the public road to the entrance of the mansion. A large gateway leads into the court-yard, to which are attached, as a befitting introduction to the numerous collection of "auld nick-nackets" that are clustered, around and within the building, a pair of jongs or iron collars, formerly used for confining criminals by the neck, brought from Thrieve Castle, the ancient seat of the Douglases of Galloway. Passing under its portals, the peculiar appearance of the building is displayed; it is built of blue whin-stone, faced with sandstone doorways, windows, cornices, and ornaments, the colours of which contrast finely in its projecting balconies and castellated turrets. The court-yard extends along the front of the house about 150 yards, and forms almost a square; directly opposite the gateway, a screen of open arches of Gothic stone-work filled with a net-work of iron affords a glimpse of the garden, which is beautifully laid out in the formal olden style. Around the walls of the court-yard, and also in various parts of the building, numerous antiquarian relics, stones carved with armorial bearings and historical and pious inscriptions, which have been gathered with immense labour from many an old and mouldering ruin, are built into the walls; and perhaps the most curious oddity is the door which formerly closed the portals of the old Tolbooth of Edinburgh: it is built in about half way up the wall, and at the west end of the house there is a doorway composed of the stones which formed the actual portal of the Tolbooth. They were given to Sir Walter on the pulling down of that building in 1817. Near this doorway is the pulpit from which the celebrated Ralph Erskine poured forth the thunders of his eloquence. All around the back of the house and along the wall of the garden, there is a balcony of cast metal, and also a finely trellised and shaded walk, and in front of the western and older part of the house is placed a very beautiful and by no means unsuitable ornament, the stone fountain which formerly stood upon the old cross at Edinburgh.

The projecting porch, which forms the principal entrance to the house, is copied from one in Linlithgow Palace; under its roof are a fine pair of the horns of the wild bull, one of which Sir Walter has introduced in his "Bride of Lammermoor." The species are now almost extinct, although at one time they ranged through the forests of Britain; the whole surviving members of the race are to be found in the parks of Chillingham Castle, Northumberland, the seat of the Earl of Tankerville, by whom they are strictly preserved. The door, surmounted by a huge pair of petrified antlers of the ancient British elk, leads into a hall filled with curiosities, chiefly of an ancient and warlike character, and some very fine suits of armour of different periods. The walls are pannelled with richly-carved old wainscot from the Palace of Dunfermline, and the floor is of black and white marble from the Hebrides. Between the painted arches of the roof are shields presenting the armorial bearings of Sir Walter's father, his maternal ancestors, and the various families with whom he claimed kindred. Two rows of escutcheons running along the cornice of the ceiling contain the heraldic distinctions, richly blazoned, belonging to the various families that kept the Borders—as the Douglasses, Kers, Scotts, Turnbulls, Maxwells, Chisholms, Elliots, and Armstrongs,—with this inscription: "*These be the coat armories of the clanns and cheif men of name wha keepit the marchys of Scotland in the auld tyme for the Kynge. Trewe men war they in their tyme and in their defence God them defendyt.*" The fire-place is finely cut, being copied from Melrose Abbey. In the corner near the door stand the ponderous keys of the old Tolbooth, so intimately connected with the fortunes of Jeanie Deans, the "Heart of Midlothian." This leads us into Sir Walter's study, the *sanctum sanctorum* of Abbotsford. This apartment is shelved from top to bottom, and contains a number of books, chiefly of reference; in the centre is a plain writing-table, and an old arm chair covered with leather. A narrow gallery runs round the room, affording access to the higher bookshelves, and also communicating with the poet's sleeping apartment. This he had constructed for his own special convenience, for after the great success of his early volumes, crowds of tourists flocked across the borders to view the beautiful scenery of those localities which the genius of the Great Minstrel had consecrated as classic ground. Melrose was comparatively unknown until the "Lay of the Last Minstrel" sang of its glories, and Loch Katrine was unfrequented until the "Lady of the Lake" threw a halo of poetry around the natural magnificence of its beauties. The majority of these visitors paid their homage to the poet at his own mansion, when they were always entertained with that cordial hospitality, to be in a position to bestow which formed a ruling passion of his life. His visitors imposed largely upon his time when he was requiring it most: when the failure of the unfortunate speculations in which he became entangled, and the clamour of creditors which followed hard upon them—whilst these were taxing his energies to the utmost, and every nerve was strained to reterive the confusion into which his affairs had fallen, then, as the early dawn was stealing over the distant hills might he have been seen coming along that narrow gallery and descending that turning stair, and seating himself in that old arm chair, devote himself anew to his herculean task, until his butler, Dalglush, touching him upon the shoulder, announced that breakfast waited for him, when he would throw aside his studious air, and devote himself throughout the day to the entertainment of his guests, with that charming manner which Washington Irving has so beautifully described in his "Miscellanies," until, as the evening advanced, he would again retire into his study, and work far into the watches of the night.

Notwithstanding the encroachments which his time was thus subject to, the amount of matter that flowed from his prolific pen was enormous, and his devotion to his literary labours was intense; his difficulties were immense, and his efforts for redemption were noble and self-sacrificing; but they ultimately dragged him to a premature grave. Mr. Lockhart, his son-in-law and his biographer, tells us that on one morning before breakfast he finished "Anne of Geirstein," and immediately commenced his "History of Scotland" for Lardner's Encyclopædia. In a closet attached to the study are to be seen the costumes he wore as a member of the Celtic Society and of the Yeomanry Corps, and also his last country dress, the broad-skirted coat with large buttons, the plaid trowsers, the heavy shoes and stout walking-stick—the dress in which he rambled about in the morning, and which he laid off when he took to his bed in his last illness. These, like the garments of Nelson in Greenwich Hospital, are not without interest as pertaining to such a man. The study communicates with the library,

which is the largest of all the apartments; it is gorgeously fitted up with antique cabinets and book-cases, and contains about 20,000 volumes, embracing all the finest and rarest works on Scottish history, antiquities, legends, and superstitions. The ceiling is of carved oak, after models from Roslin, and the balconied windows look out upon the Tweed and a fine expanse of surrounding country. Over the marble fire-place is the fine full-length portrait of the poet's eldest son, painted by Sir William Allen. He is standing in the full dress uniform of the Hussar regiment to which he was attached, leaning against his horse, which he holds loosely by the rein. The dashing regimental uniform has given fine scope for the glowing pencil of the artist: the picture is a fine study of colour, brilliant but harmonious, and well worthy the late president of the Scottish Academy. The magnificent bust by Chantrey of Sir Walter himself, well known by copies and engravings, has since his death been placed at one end of the room, and a copy of the Stratford bust of Shakspere graces the other. A silver urn, a gift from Lord Byron, stands in one corner on a rich stand of porphyry. The library is connected at the west end with the drawing-room, on entering which on the left hand is a portrait of Mr. Lockhart, and facing which are portraits of Mrs. Scott and her two daughters; over the fire-place is the portrait of the great hard himself, by Sir Henry Raeburn, and which is one of the noblest efforts of this artist's pencil. The character of the man is stamped emphatically upon the canvass, not so fine it may be as in the marble of Chantrey, but it is truer to nature: the bust is the man idealised (to be allowed the term), the portrait gives him as he was, with all his intellectual fire beaming upon the spectator. This picture is low in colour, and possesses few of the attractions of the palette, but it absorbs the gazer by the quality of mind impressed upon it by the great artist, and fascinates by its masterly conception, its exquisite finish, and the beautiful harmony of the whole. The portrait is very generally known by the engraving; there sits the stern old man, beneath the shade of some ruin, his head resting on his hand, and his mind ruminating over the plot of some incipient romance; whilst his favorite deer-hound, Maida, stands majestically by his side, and as if fully aware of the importance of his office, he guards the privacy of his master from intrusion. In this room are the set of richly-carved ebony chairs presented to the baronet by George IV. This leads us into the armoury, a a narrow low-arched room, which runs quite across the house, and having a blazoned window at either extremity; the arches of the roof are supported by numerous grotesque figures, carved after the originals in Melrose Abbey. It is filled, like the entrance-hall, with warlike instruments and curiosities, and contains many relics of historic fame, such as the pistol of Claverhouse, the sword presented by Charles I. to the Marquis of Montrose, the long barrelled musket used by the famous outlaw, Rob Roy, and bearing his initials, R. McG, the blunderbuss of Hofer's lieutenant, the hunting flask of James VI., and the pistols of Napoleon, found in his carriage after the battle of Waterloo, and various other curiosities of lesser note. Communicating with the armoury is the dining-room, which contains a fine collection of paintings, amongst which are portraits of Cromwell, Claverhouse, Lord Essex, Charles II., Charles XII. of Sweden, and the head of Queen Mary in a charger. There are also a few family portraits, and one particularly of Sir Walter's great grandfather, who allowed his beard to grow after the execution of Charles I. A melancholy interest attaches to this part of the house, for in this apartment the Great Minstrel breathed his last. Borne down and and exhausted by the superhuman efforts he imposed upon himself, his naturally strong constitution began to give way. A fine frigate was placed at his disposal by the government, and in it he was removed to Italy by his friends, in the vain hope that relaxation and change would restore him; but the strong man was exhausted, and gradually sinking under his infirmities, his heart yearned to behold again his beloved Abbotsford; thither at his earnest request he was ultimately removed, and, on the 21st of September, 1832, his mighty spirit shuffled off "this mortal coil," and soared upward to brighter and more glorious regions than the loftiest efforts of the poet's imagination can realise or conceive.

Beyond the dining-room is a small parlour, which contains the valuable collection of original drawings by Blore, Calcott, Turner, and others, for the "Provincial Antiquities of Scotland." Over the fire-place is a fine oil painting of Fast Castle, the *Wolf's Crag* of "The Bride of Lammermoor," by that distinguished amateur the Rev. John Thompson, of Duddingston. Leaving this apartment, and proceeding along a lofty passage imitated after the cloisters of Melrose, we are again ushered into the court-yard. Close by the porch of the entrance-hall is a marble effigy of Sir Walter's favourite dog Maida, placed over its grave, and bearing this inscription:—

"Maidae marmorea dormis sub imagine, Maida,
Ad januam domini; sit tibi terra levis."

Faithful friend of thy master, sole companion of many a lonely ramble. "O Maida, thou liest under the marble image of Maida, at thy master's door,—may the earth be light upon thee!"

Such is a faint sketch of the beauties of Abbotsford,—the romanceful reality of the poet, a resuscitation of ancient grandeur, a palace of beauty. It was entirely the creation of himself; selecting the spot for his future home, he saw the charm of beauty wide spread by nature's lavish hand on an onstead known only by the unpoetic name of the "Clarty Hole," and here he gradually raised, as his resources increased, the magnificent structure, that "dream in stone," which, consecrated as it is by the many reminiscences of his life and his labours, beautified as it is by all that art and refined taste can supply, honoured as it is by the literary contributions that have issued from its walls, it stands unequalled, over "braid" Scotland and throughout "merrie" England, and is the source of profound and delightful interest to thousands of admiring visitors.

The first purchase of the estate was made from the late Dr. Douglass, of Galashiels. The money was paid by instalments, and the letter inclosing the last remittance contained these lines:—

"Now the gowd's thine
And the land's mine."

Various "pendules" were purchased at different times from the neighbouring honnet-lairds, until the estate assumed its present noble dimensions. It is now in the hands of Sir Walter's grandchildren; and we are happy to add, that the profits arising from his collected works have long since cleared off all its liabilities, and they now remain as lucrative property to his descendants.

Bidding farewell to Abbotsford, we retraced our steps, and crossing the river visited the Ryhmer's Glen, a favourite haunt of the poet; and, on the authority of Mr. Lockhart, as well as the visible portraiture of this secluded spot, there can be little doubt that this is the true "Glendearg" of the "Monastery." The Allan-water runs through the glen, and it was at the ford, a little below where this stream enters the Tweed, that Father Philip had his adventure with the White Lady of Avenel.

Following down the course of the Tweed for a few miles, we come to the Abbey of Dryburgh, situated in the midst of an extensive and beautiful promontory formed by a majestic bend of the river. It is a romantic old ruin, and possessing many attractions, but its great attraction is the family vault of Hallihurton, beneath whose cloistered aisles repose the illustrious ashes of the "mighty minstrel of the North."

Leaving the old mouldering pile to the sylvan solitude that surrounds it, we moved towards the point of our sojourn for the night, hurrying onward as the red beams of the setting sun cast a lurid light across our path, our thoughts reverting to the scenes we were leaving behind. When we consider all that Sir Walter Scott did for literature at the commencement of the present century, and above all for the literature of fiction, how much light his genius has thrown upon portions of our scenery, and of history which were previously unexplored, and how much high and elevating enjoyment he has sown broadcast all over the world, wherever the English language is spoken, it will be readily acknowledged that a visit to Abbotsford may well form an epoch in a man's life.

*** Through an oversight, we omitted to mention that Whithier, the American poet, is the author of the piece entitled, "To My Sister," which appeared in our last number.

THE APOLLO GALLERY AT THE LOUVRE.

On issuing from the court of the Louvre, in the direction of the Seine, the visitor to Paris may have noticed gardens both to the right and left. That to the left extends to the extremity of the Louvre, then, forming an angle, stretches away under the celebrated Perrault Colonnade. That to the right, known as the Jardin de l'Infante, is bounded towards the west by a part of the Louvre which projects upon the quay, and in the first floor of this building is the Apollo Gallery. The ground floor is occupied by Greek and Roman sculptures. Formerly, both this and the floor above were comprehended under the name of *La Petite Galerie*. "The Little Gallery," says Sauval, "was commenced under Charles IX., and finished under Henry IV., by Chambiche, as far as the first story, which was covered in by a platform or terrace, which Charles IX. used as a promenade. Fournier and Plain built the second story, under Henry IV., and Du Breul, Bunel, and Porbus, decorated it with paintings. This building extends in a square from the pavilion of the Louvre to the Quai de l'Ecole, upon the banks of the Seine. The ground floor is occupied by the new apartments of the Queen Regent, and the first floor by a gallery which is not surpassed in regularity and order by any other in the world. Its length, breadth, and height, harmonise admirably. It is one hundred and eighty feet in



APOLLO GALLERY AT THE LOUVRE, IN WHICH THE FRENCH SENATE CONFERRED THE EMPIRE ON LOUIS NAPOLEON.

length, and twenty-eight in breadth, and is lighted by twenty-one great windows. Its piers are adorned with portraits of some of our kings as well as of our queens; the roof is divided into several large panels of various forms. At the further end, a balcony overhangs the Quai de l'Ecole, commanding one of the finest views in the world."*

On the sixth of February, 1661, a fire destroyed the greater part of the decorations of this gallery. Some workmen had been engaged in fitting up a theatre for a ballet, in which the king was to dance, and, through the carelessness of one of them, some of the timberwork caught fire. Loret gives an account of this accident in bad verse, in his letter of the 12th of February, 1661.

After this, Charles Lebrun was called upon to submit plans for its restoration, and the idea upon which he based his designs was one sufficiently French and sufficiently flattering to his employer, namely, the glorification of Louis XIV., as personified by Apollo. He made a great many drawings. In the one which was adopted, but which was never completely executed, he proposed to divide the ceiling into eleven compartments, and in the centre to place Apollo in his chariot, surrounded by all his attributes, and in the others figures of the Muses, the Seasons, Evening, Morning, and the awakening of the Waters and the Earth at the first rays of the Sun. This plan was distinguished by harmony existing between all the parts, and Louis XIV. paid the artist different sums towards its completion; but very soon he seemed to lose all interest in the Louvre, and took a fancy to Versailles. Lebrun was then called upon to decorate the great hall of the latter, and thither transferred all his plans; his Sun, his Hours, his Parnassus, and his Muses. After the death of Lebrun in 1690, for a hundred years the project approved of by Louis XIV. was entirely forgotten: the gallery itself was applied to various uses. The Alexandria paintings by Lebrun were placed there at first, and afterwards removed to make way for others; then, in 1744, they were brought back again. In 1747 and 1748, they were again removed, and the works of other artists exhibited in their place.

About the year 1751, the gallery was used as a studio by six pupils, whom the king had taken under his special care and protection. In 1764, the various academies sat there. Shortly afterwards, the resolution was formed of completing the original work, under the direction of M. Marigny. A pupil of Lebrun's, named De St. André, undertook to engrave all the different paintings, not only those which his master had finished, but those of which he had only sketched the design. These engravings formed in all forty-four plates. Another artist, Jean Berain, engraved eleven plates, the different ornamental compartments, and the abutting piers between the windows. But, unfortunately, these two artists have not given to the *toute ensemble* that appearance of union and harmony which Lebrun would have produced had he worked out his own ideas; but Marigny seemed to have caught them perfectly.

To complete the decorations, the Academy selected five artists, to each of whom a separate department was assigned; and while they were engaged at their paintings, the hall was used for the exhibition of works of art of all kinds—pictures, drawings, enamels, marbles, vases, &c. But, in the meantime, the old decorative sculpture, and even the building itself, were deteriorating rapidly, and no further steps were taken in the matter. About the year 1804, Napoleon determined that it should be restored and redecorated throughout; but weightier cares oppressed him, and he never carried his design into execution. Louis XVIII. proposed to distinguish his reign in the same way, but death prevented him.

In the reign of Charles X. they were obliged to prop up the roof. After that the gallery was for a long time blocked up by scaffolding, which obstructed the light, and was used but once a year for the exhibition of drawings, engravings, and lithographs.

In 1833, Louis Philippe took it into his head to complete what his successors had left unfinished. His design was to fill the empty panels by paintings illustrative of the history of the Louvre; and a programme of the subjects was prepared, distributing the work amongst Tonry and Alfred Johannot, Blondel, Picot, and other celebrated artists of the day. All the paintings were duly executed, but it was found that before they could be fixed in their places, the ceiling should be repaired and redecorated. In the meantime they were scattered through the different royal residences. But Louis Philippe, like Louis XIV., now suddenly lost his interest in the Louvre, and appeared to be seized with a most ardent desire for the re-decoration of the Chateau of Versailles; and the Apollo Gallery was once more left to its fate.

In 1848, the Constituent Assembly voted a sum of two million francs for the execution of works in the Louvre, to be divided between the Museé Nationale, the Grand Salon, the Salon des Sept Cheminées, and the Apollo Gallery. To M. Duban was committed the direction of the whole, and he displayed such activity that it was completed in two years. The side wall, which was cracked from top to bottom, was in part rebuilt. The roofing, also, had to undergo complete repair, and this necessitated the entire removal of paintings and sculptures by which the ceiling was decorated. M. Duban also restored the exterior, taking as his guide an engraving by Marot of the appearance of the building previous to the alterations which had been made by Lebrun. M. Cavelier, the sculptor of the "Sleeping Penelope," executed the figure of "Fame" on the pediment, which in Marot's engravings appears seated between two terms. In the interior M. Poppleton retouched the historical and mythological paintings, particularly Lebrun's "Evening," "Night," and the "Triumph of Neptune and Amphytrite." M. Guichard painted the *voussure*, containing the "Triumph of the Earth," from a design by Lebrun. Müller executed a new modillion, after an engraving by St. André, representing Aurora seated on her car. The task of restoring the arabesques, fruits, &c., was committed to other artists of less note. But the principal work was the painting intended to fill an immense compartment in the ceiling, twenty-four feet in length by two in breadth. It was in this that Lebrun intended to represent Apollo in all his glory.

This noble work was assigned to Eugene Delacroix, who had already displayed the richness and vigour of his imagination in the decoration of the ceilings of the library of the Chamber of Deputies and Chamber of Peers. His *Apollo Vanquishing the Serpent Python*, has fully answered the expectation of the public. The god, seated in his chariot, has already let fly a part of his arrows. Diana, his sister, flying after him, presents him with his quiver. The serpent, pierced by the darts of the god of life and heat, is writhing in agony, and breathing out his remnant of life in a fiery vapour. The waters of the deluge have begun to subside, and leave the carcases of men and animals bleaching on the mountain tops. The gods are indignant at seeing the earth abandoned to horrid monsters, the impure offspring of the slime, and take arms to exterminate them, whilst in the meantime eternal wisdom is replenishing the globe. Hercules crushes them with his club; Vulcan, the god of fire, drives away Night and noisome exhalations; Boreas and the Zephyrs dry up the waters by their breath, and scatter the clouds. The nymphs of the rivers and streams have recovered their beds of roses and their urns, sullied by the mud and *debris* of the inundation. The more timid of the deities look on from a distance at this conflict between the gods and the elements, and in the meantime, from the highest heaven Victory descends to crown the victorious Apollo, and Iris strikes her harp as she flies through the air to celebrate the triumph of Light over Darkness, and over the rebellious Waters.

This splendid gallery was then re-opened to the public in 1850, and forms one of the finest sights in Paris. All pleasure-seekers would do well to pay it a visit.

It has now acquired additional interest from the fact, that in it, on the 1st of December, the French senate conferred the empire on Louis Napoleon.

* This is the balcony from which Charles IX. is said to have fired upon the Protestants at the massacre of St. Bartholomew; but it was in reality not in existence at that time, as the story to which it belonged was not erected over the terrace until the reign of Henry IV. He must, then, have placed himself at some of the windows on the ground floor.

FRANCISCO PACHECO, AS AN AUTHOR.

Francisco Pacheco was a Spanish painter of considerable reputation, but certainly not so celebrated as a painter, as for being one of the best historians of Spanish art. He was born at Seville, in 1571, of a respectable branch of the noble house of Pacheco, illustrious in very early times, both in arms and letters. It is not our purpose here to notice him in his artistic character, or to tell as Spanish chroniclers do tell, how he painted the standard of the fleet of New Spain and the mainland, which went forth to "the battle and the breeze," in 1594; nor how, just four years afterwards, he executed a great portion of the paintings in distemper, for the monument erected on occasion of the funeral honours of Philip II.; nor how he was engaged to paint, for the Convent of Mercy, some passages from the life of St. Raymond, the miraculous navigator. In 1618, he was chosen Familiar of the Inquisition, a post which conferred great privileges and immunities. He was also appointed inspector of pictures, whose duty it was to watch that no indecorous pictures found their way into the churches, or were exposed for sale, and to act as a general censor of the pencil. He received more orders than he could possibly execute, as these honours increased upon him; yet, nevertheless, found time to follow his beloved occupation of authorship. In 1619 he republished the poems of his friend Fernando de Herrara, to which he prefixed an eulogistic sonnet. In the following year he drew his pen in defence of his order, and wrote a learned paper on the comparative merits of painting and sculpture, in which he presented the palm to the former. His treatise on painting was not published until his seventy-eighth year. The writings of Pacheco were the most important legacy he left behind him. One says, he can scarcely be called an agreeable writer, being pompous and prolix even beyond the measure of his age and country. "Tubal, the son of Japhet, was the first man that came into Spain," writes Mariana, in the opening pages of his history. Pacheco, with equal gravity and yet greater assurance, ascends the stream of time to its very source, and begins his history of painting in chaos and eternal night. Gravely examining the claims of sculpture to rank as the eldest of the arts, because God modelled Adam of clay, he rejects it on the ground that the previous creation of light and colour confers the distinction on painting.

"Like Carducho, he delighted in anecdotes of the painters of antiquity, in whose history he was almost as well versed as his contemporary, the Dutch Junius. He introduces the story of the pots and dishes in Cespede's 'Last Supper,' by relating a similar tradition of Parrhasius, and his picture of a 'Satyr,' in which the principal figure was eclipsed in public estimation by an accessory partridge, so naturally painted, that it called forth the greetings of other partridges; and his remarks on modern art in Italy and Andalusia are generally illustrated by tales of the Rhodian and Athenian studios."

In the description of his own performances, Pacheco grows wondrously prolix and minute. He points out every beauty, and every little circumstance connected with it is related with careful fidelity. Forty quarto pages he devotes to a description of his "Last Judgment," and sparing no pains to make the reader understand the various reasons by which he was guided in his selection of figures and grouping of characters. He dilates with remarkable earnestness on the improvement which he effected in the whole design by transferring the celestial standard from the hands of the archangel Michael to that of his companion Gabriel. Pacheco is the author of a code of rules for representing, in an orthodox manner, sacred scenes and personages. Of the appearance of the most illustrious saints and martyrs he gives minute descriptions. On the subject of the Crucifixion he is very precise and systematic. The cross, he says, measured fifteen feet in heighth, and across the arms eight feet; its timbers were flat, and not round, with four, and not three, extremities, as some have supposed. The stem, he says, was made of cypress wood; the transverse bar of pine; the block beneath our Lord's feet of cedar, and the tablet for the inscription of box. Against the usage which had crept into modern art of representing the Saviour's feet as fastened by a single nail, he protests, as an heretical innovation. He fortifies his position by re-printing an elaborate essay on the four nails of the cross, by Francisco de Rioja, who learnedly defends the same opinion.*

The most agreeable portion of Pacheco's writings are those which refer to the history of Spanish art. There the goodness of the man's nature is perhaps more evident than the correctness of his judgment. He is an universal eulogist, and praises, in a style of heavy admiration, all contemporary painters. Loudly he vaunts the powers of Velasquez, and rejoices in his great success as if it was his own—consoling himself for the superiority of his scholars' work, by talking of the parallel case of Jorge de Castelfranco and Titian, and Plato and Aristotle.

The poetry of Pacheco was generally considered superior to his prose. Of one of his epigrams, it has been remarked, that although the copiousness and facility of the Castilian makes it no less happy in this species of writing than the Greek or Latin, there is nothing better of the kind in the language—the translation runs thus:—

"A daubing dunce had limn'd a cock,
When, lo! live chanticleer came by,
As if to give his brush the lie,
And the fool's ignorance to mock.

But lack of skill the man supplied
With one well-aim'd and vengeful knock,
And so the unoffending cock
Fell martyr to the truth, and died."

"Pacheco," says Stirling, "was one of the most careful and diligent of painters; he executed no work without having made several sketches of the subject, accurate drawings of the heads, and studies, in crayons, of the hands and other anatomical parts of his figures; and his draperies were always modelled from the lay figure. His pictures, therefore, seldom offend against the rules of drawing and composition; but they are deficient in vigour, and display more learning than imagination, and the colouring being dry and harsh, they are frequently unpleasing in general effect." This painter informs us, that at the commencenent of his career, he deeply studied the compositions of the great Raphael, "being moved thereto by his beautiful designs, and by an original sketch in water colours, drawn with marvellous skill and grace which fell into my hands, and has remained for these many years in my possession. Pacheco indulged the passion for the universal, and tried all the various departments of his art, now a devotional subject for an altar-piece, now ornamenting the ceiling of a palace, now illuminating a costly manuscript, now designing a piece of still life, anon painting portraits with an accuracy and skill which made them the happiest efforts of his genius." He left above a hundred and seventy sketches in crayons, of his friends and illustrious contemporaries, including the author of Don Quixote, of all Spaniards the man of whom such a memorial would be most valuable. Part, if not the whole of these, probably formed the precious volume of "*Imagines Virorum Illustrium*," with "*Elogia*," drawn and written by Pacheco, and mentioned by Antonius as having once graced the rich library of the Count Duke of Olivarez. It is to these portraits that Quevedo alludes when, apostrophizing the pencil, he pays the following compliment to the powers of Pacheco:—

"Por ti! honor de Seville,
El docto, el erudito, el virtuoso,
Pacheco con lapiz ingenioso,
Guarda aquellos borrones,
Que honrárpn los naciones
Sin que la semejauza
A los colores deta su alabanza,
Que del carbon y plomo parecida
Reciben semejanza, alma y vida."

"By thee! Pacheco, Seville's pride,
Learned, and wise, and virtuous,
With skilful crayon keeps for us
The features of the good and great,
Whose names all nations celebrate,
In portraits where no mimic dyes
Appear, to cheat or charm our eyes,
But semblance just and life and soul
Are wrung from dusky lead and coal."

* W. Stirling.

THE PANTAGRAPHIC CUTTING, CARVING, AND ENGRAVING MACHINE.

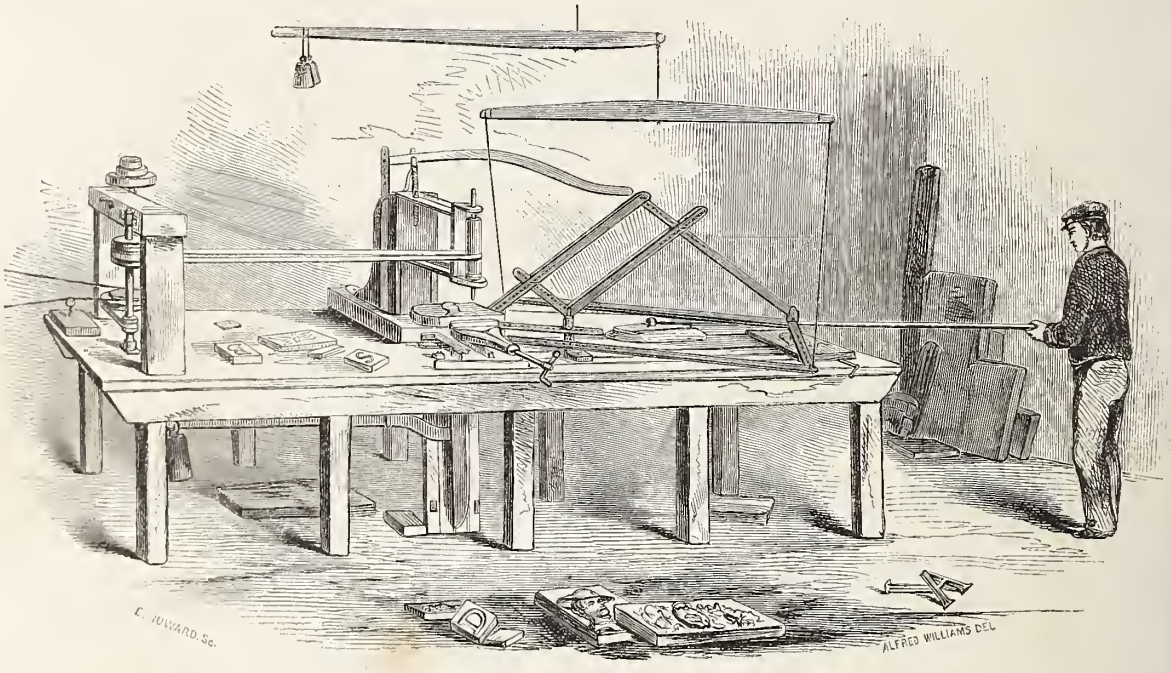
It is now generally understood and believed that every addition to the arts and sciences, every new discovery, improvement, and invention, has but one end—the promotion of the comfort and happiness of mankind. And thus it is that the public have at last come to consider machinery an aid rather than an evil; thus it is that mechanics and artisans—the last persons to acknowledge the utility of any plan which either does, or is supposed to, interfere with their just rights and privileges—have been brought to look upon the steam-engine as a valuable co-worker, instead of, as heretofore, a sort of mechanical thief. Indeed, the larger the number of useful machines invented, the greater seems the need of skilled workmen—for machinery, after all, does only the work of the labourer.

We have been led to make these remarks in consequence of a conversation we had with a friend on the subject of the machine we are now about to describe. The Pantagraphic Carving and Engraving Machine is a new invention of immense importance and capabilities, and by means of it nearly all kinds of cutting, carving, and engraving on marble, wood, stone, ivory, and other materials may be accomplished. Now it would appear at first sight that an instrument of this description would supersede skilled manual labour in the production of the various objects submitted to it; but that it cannot altogether take the place of the workman is evident from the fact that its powers are confined to copying; and that for every separate design there must be an artistic original. It imitates the work of man's hands in a most marvellous manner, but it cannot conceive or originate.

This assertion, however, requires some qualification—as, indeed what assertion does not? Thus, when we say that an artistic original is required, we state nothing more than the truth; but we must also say that a *highly-finished* design is not absolutely requisite, so long as grace of outline and correctness of drawing is preserved—a groove being only required for the tracer to pass through in the pattern, and the moulding being given to the various parts of the perfect copy by the tool employed. And again, to such perfection has the machine already attained, that copies in metal or wood may be made of drawings or engravings on paper; and indeed, if the workman were an artist—as a workman properly educated should be—a design might be transferred at once to the wood, &c., by the aid of the cutting instrument, without the employment of a separate drawing at all. To explain: this machine consists of a slide rest, or floating bed, to which is united a pair of pantagraphs; a tracer passes over every part of the pattern, and the cutting-tool makes on the material employed *fac-simile* indentations with the most perfect accuracy; and in such a manner, too, that all parts of the design to be copied are submitted to the action of the cutting tool. The office of the pantagraphs is to reduce the copy to any size required. To repeat, the lines of the design are determined by the patterns or originals submitted to the action of the tracer, and the tool being fixed, no deviation from the pattern can take place, provided it be accurately traced by the workman. The tracer being considered as one arm of the machine, and the cutter as the other, the operation is purely mechanical.

Thus all kinds of carvings for ecclesiastical, commercial, and other purposes may be produced at this machine. In the first engraving we have a perspective view of the instrument, in which both the horizontal and vertical pantagraphs are shown; but a better idea of it will be formed by an examination of the working drawing on the other page. For this engraving and its mechanical description, we are indebted to a gentleman well known in the scientific and literary world. A, is the cutter, beneath which is placed the object to be acted on. B, is a revolving spindle with socket, into which the cutter or tool is fixed. C, is a screw with nuts for lowering or raising the cutter in accordance with the pattern required. The lever D presses the tool down upon the substance to be engraved, which is fixed upon the bed, or frame E. A band marked F, communicates with the moving power, which may be of any description accessible. The machine with one cutter is not a heavy drive for a man of ordinary strength; but although manual power may be used, yet in practice steam power will be preferred. Two blocks, marked G G, are placed beneath the frame, when the engraving required can be produced by a horizontal operation of the tool; as in cutting plain letters in stone; and removed when a vertical motion is necessary, for example, in cutting floral ornaments or figures. The letter H denotes a moveable slide used in vertical work, when the lever and weight, marked I, come into operation, the weight balancing that of the material employed, and being varied with its magnitude.

The two pantagraphs, marked L L, are in different positions.

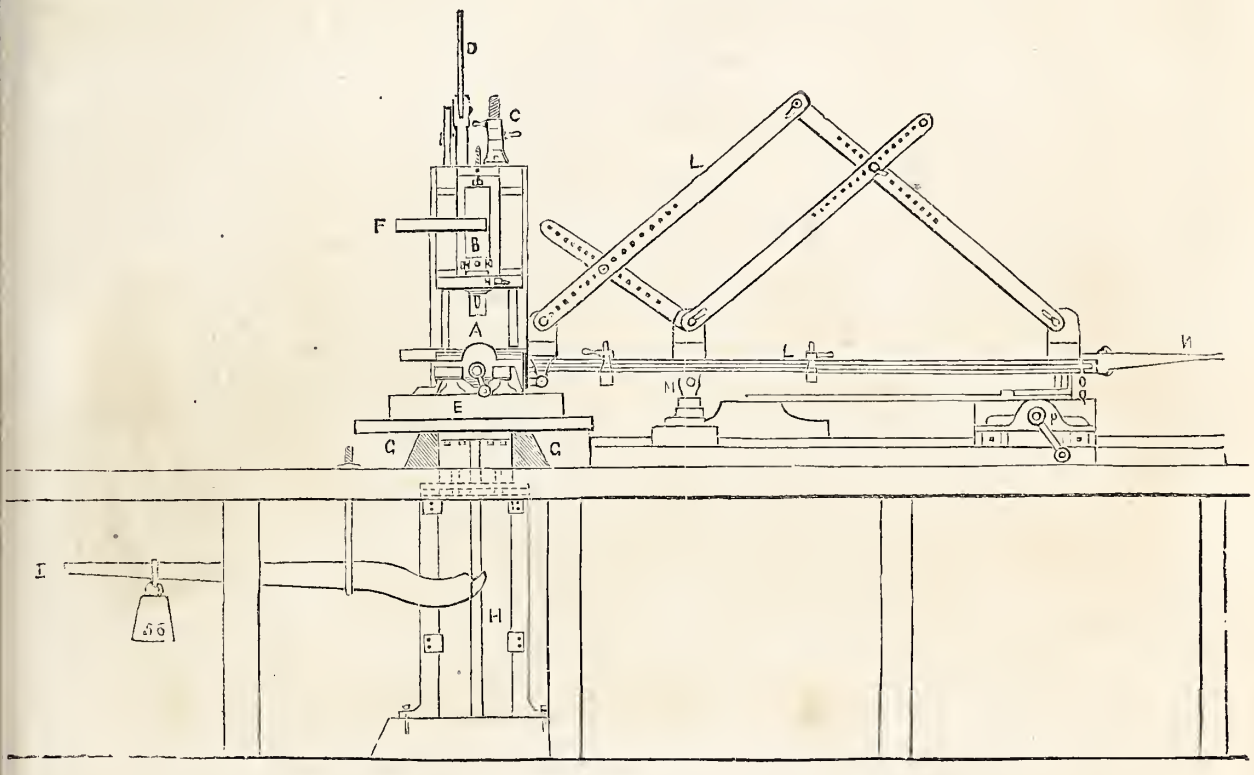


PERSPECTIVE VIEW OF THE PANTAGRAPHIC CARVING AND ENGRAVING MACHINE.

The vertical is described in the drawing, but the horizontal, wrought on the same principle, gives only what may be termed a side view. This double pantagraph is connected with the bed by a small joint, which will be readily observed attached to E in the engraving. The pantagraphs are moved by the handle N on the fulcrum or pivot M; and this handle N also moves the tracer O, which operates in the pattern fastened in the grip P.

The moving power gives the cutter many thousand revolution per minute, and after the cutter A has passed through an ordinary operation, it is found perfectly cool, so that in reality, one tool may make almost an indefinite number of cuttings. The absolute motion being thus obtained, its direction is given by the operator from the handle N, through the pantagraph in strict accordance with his pattern, with the aid of the tracer O. The horizontal pantagraph gives an even pattern, and the vertical enables the workman to copy a floral or other pattern, such as a medallion of varied depths. The pantagraphs allow him to copy the pattern on various scales of size, adhering always to the precise proportions in the original.

extreme simplicity; and so entirely free is it from complication, that one wonders when examining it, that such a machine should have remained so long uninvented. At first it was supposed that this instrument would be useful only for cutting wooden type letters and the wood letters used for shop fronts; and for the production of such objects, together with *the cutting and carving of all irregular figures*, has a patent been taken out and a company formed. The insertion of the words we have italicised in the specification has not only made the patent one of the most secure in existence, but has also enabled the projectors, Messrs. Searby and Turner, to bring out the full capabilities of their very ingenious machine. By it they are enabled to produce all kinds of carved and engraved work in stone, metal, wood, or ivory. Every day brings its proof of some new adaptation of its principle, or some fresh evidence of its capabilities. From being intended merely to cut wood letters, it has been found capable of producing the most minute description of engravings on polished metals, gems, and other adjuncts of ornamental art. For the purposes of trade, this



WORKING DRAWING OF THE PANTAGRAPHIC CUTTING, CARVING, AND ENGRAVING MACHINE.

In the machine, as shown in the engraving, only one cutting instrument is employed, but we understand that several cutters may be employed at the same moment without interfering one with the other; so that with a single object of imitation, a dozen or more articles may be produced at one operation. The patent merits of this machine do not consist in the use of the pantagraphs for reducing the size of the copy—for this principle is well-known, and has long been in use for the purpose of taking profile likenesses—one leg of the pantagraph passing over the features, and the other recording the likeness on paper; nor does it rest with the union of the two pantagraphs in different directions, as might at first sight be supposed; nor with the moving power, the cutters, or the sliding rest,—but with the combination and adaptation of the whole of these peculiarities in one instrument. Though made up of several previously known principles, the Pantagraphic Carving Machine must be considered as perfectly original. Indeed, the very fact of taking old principles, and uniting them so that new effects may be produced from their combination, is the very essence of originality. The most remarkable fact, too, connected with this machine is its machine will multiply with extreme rapidity all kinds of architectural carvings in wood and stone; open tracery, such as is used for pianofortes, in the hard woods of America and India; blocks for the paper-stainer, and engraved cylinders for the calico-printer; picture frames, furniture mouldings, and many similar articles of extensive use.

In the production of one article alone, it seems that this machine is a sort of fortune to its proprietors. Of course everybody knows what a saw-handle is, and that a number of tools—key-hole saws, and chisels, and rasps, and files, and planes—must be used by the workman who makes one; but with this machine a pair of saw-handles can be turned out complete by a single operation, in as little time as we have taken to write down the fact. And then as for the letters for shop fronts, we may simply state that they may be cut in stone or other substances at the rate of 5,000 a week.

But the capabilities of the machine have been yet further tested, and statuettes, busts in marble, and basso-relievos in ivory and metal have been produced which rival their originals in accuracy of detail and beauty of finish. Indeed, it is scarcely possible

to put any limit to the productions of this very remarkable invention. When we were present at the Company's works at Pimlico, we witnessed the cutting of a letter in marble,—and, indeed, cut one ourself, though we are no mechanic, and never saw the machine before—and had put into our hands a bust of Jenny Lind in ivory, a bas-relief of Wellington, and various other objects carved by the machine. Among other wonderful performances of this machine, we may mention a miniate engraving on the polished surface of a razor blade, and an engraved representation of a coat of arms upon a slip of glass!

Now, it is not possible to engrave on hardened steel by means of hand labour with any kind of instrument we possess; nor can figures or designs be produced on glass, except by a slow and expensive process. Here, then, is a field of operation open in which few rivals will be found. So easily is the machine guided, that a lad of ordinary intelligence might be set to work on the first day of his engagement; and yet so multifarious are the objects it will produce, that the highest intellect, and the most practised talent, might be well employed in producing patterns for its imitation. We have little doubt but that, in a short time, a complete revolution in the style of domestic architectural ornamentation will be brought about by means of this ingeniously contrived instrument. Of the commercial success of the company there can be no question.

REMINISCENCES OF AN IRISH CANDIDATE.—RODERICK Mc. FADDEN, ESQ.

PART I.—THE CANVASS.

Conscious of some measure of ability to serve my country in Parliament, possessing an honourable independence, and not destitute of ambition, I felt for some time before the last general election a strong inclination to enter Parliament. The difficulty was to find a constituency that would choose me. I was not celebrated for anything. Indeed, I was scarcely known in any of the "worlds," political, religious, literary, or philanthropic. I had headed no agitation, written no "Coningsby," set on foot no great philanthropic projects for the instruction and elevation of the masses. I am neither an orator nor a statesman. But I could afford to live in London without running in debt. I have an average share of intelligence, a fund of common sense, and, though I say it, an honest heart, devoted to my country, which has been grievously injured by rascally representatives. Patriotism, honesty and independence, then, were my only claims to represent an Irish constituency. But would these be appreciated in an age of political shams and religious fanaticism? Ultramontanism had taken possession of the constituencies of the south and west of Ireland; and the high-church aristocracy held unbroken sway in the north. I was not a member of the *Tenant League*. I was not sure that I understood "Tenant Right," and I feared that I should not be able to compose a political creed that would suit any of the parties into which my country was divided.

In this state of mind I watched the electioneering movements in Ireland with much interest, and, residing in London at the time, I got into frequent conversations with the Irish members, and gave them several broad hints as to my desires and pretensions. But none of them spoke of introducing me to a constituency. I was cogitating one morning on the selfishness of the whole tribe of political aspirants, myself excepted, when the postman's knock came, and, lo! an Irish newspaper, which I had never seen before. It was sent to me by a Dublin friend, whom I had commissioned to be on the look-out for any constituency that might chance to go a begging for a candidate; and it contained a letter, which he had marked, from an influential local party, intimating that a certain Ulster county was prepared to cast off one of its aristocratic representatives, and to return a champion of Tenant Right. The people were enthusiastic, victory was certain. All that was wanted was a candidate of the right stamp. I immediately wrote to the party in question, Mr. Milton Byron Woodcock, who replied in a strain of burning patriotism, and poetic rapture, assuring me that he was delighted with the Milesian sound of my name, and the high respectability of my connexions, and intimating that he was himself nearly related to a Scottish duchess, and that he was a lineal descendant of one of the greatest of the Irish volunteers. He also hinted that two members might as readily be returned by the popular interest as one; that certain parties had proposed that he should stand himself, but he would gladly waive his claims in my favour. There was no time to be lost, and he urged me to hasten to the spot and commence my canvass at once.

I resolved to start next morning, and I travelled to the county town as fast as steam could carry me. Arrived there, I proceeded to the house of a merchant, whom I had met in London, and who lived a little out of town. I asked a woman to show me the residence of Mr. Greer, when mistaking the name for Green, the parish priest, she pointed to a nice cottage on the road side. I gave a rather stupid-looking servant maid my name, and was at once ushered into the parlour, where I met a middle aged lady, who welcomed me with smiles, and who assured me that her brother would be in in a few minutes.

"That's a sore hill to walk up," she remarked, with a kind expression in her face. "You are warm. Will you take a glass of grog, sir? "I thank you, madam," said I, "I think it will do me no harm." The decanter was immediately produced, with the genuine produce of Ennishowen. Glad to meet an old friend, which I had missed while in England, I quaffed a glass with excellent *goût*. "I suppose you are very busy now with the confessions?" she remarked. "What confessions?" said I, perfectly puzzled. "Are you not the Rev. Mr. Mc. Fadden?" inquired the lady, with something of disappointment in her tone. As it was the first time I was taken for a priest, I could hardly restrain a loud laugh. "No; I have not the honour of being in holy orders." "Oh, I beg pardon—I wonder my brother is not in. He is gone over to the chapel, and I expect him every minute." To the chapel, I thought—what the deuce would take Greer to the chapel?—he is a true blue Presbyterian. "I have just come from the shop," said I, "and the clerk told me he was here. Perhaps he is gone back to the shop again—which I think is much likelier than his going to the chapel. How is Mrs. Greer. I had the pleasure of meeting her once."

"The *shop*, sir!" she exclaimed, with a flush of indignation on her face. "Mrs. Greer! What do you mean, sir? My brother has no shop; he is the venerable Archdeacon Green, of the Catholic church."

"A thousand pardons, my dear madam," said I, rising hastily in some alarm. "I asked for Mr. Greer, not Mr. Green—and hence this confounded mistake."

The lady recovered her self-possession, and we both enjoyed a hearty laugh at the blunder. At all events, I had only accidentally anticipated my visit, as I intended to call on his reverence—as he was the chief support of the Tenant Right cause in that district.

I met him at the door. He was prepared for my arrival, and received me with the utmost cordiality—he was really a venerable looking man, portly and dignified, with good features, a ruddy complexion, and a benevolent expression of countenance. It so happened, that on that day there was to be a preparatory meeting of the committee to make arrangements for the contest; and there was also to be a public meeting of the electors in the afternoon. A considerable number of priests soon dropped in, some young and prim, others aged and carelessly dressed,—but all ardent in the cause, and delighted at the prospect of defeating the Orange Aristocrat, who had insulted Mr. Sharman Crawford in the House of Commons—and what was still worse, supported the Ecclesiastical Titles' Bill. But although they wished to punish him for his vote against "religious liberty," they demanded no test from me, except an approval of Sharman Crawford's bill. I was agreeably surprised at the liberality, candour, and confidence with which they treated me, whom they knew to be a decided Protestant. Aware that a Roman Catholic candidate would have no chance in Ulster, where two-thirds of the electors are Presbyterians, they wisely resolved to waive religious considerations, and to give all their influence to the Tenant Right candidate.

We proceeded to the hotel for the transaction of business. The town was filling with people who came in to attend the public meeting, and see the new candidate. I here directed my attention to a group of gentlemen, led on by a youthful-looking personage, diminutive, and lame, with a pale, intellectual face,

which at once excited your interest; and his shirt collar turned down, *à la Byron*, leaving the whole neck bare. He darted forward and shook the hand of the archdeacon with great vehemence, when the latter said,—"Mr. Mc. Fadden, allow me to introduce to you, Mr. Milton Byron Woodcock, the eloquent champion of the Tenant cause in this part of the country." Being a tall man myself, I looked down upon the champion with surprise, and wondered where he found room for the "great principles" of which he talked so much.

"My dear Mc. Fadden," said he, familiarily taking my arm, as if we were old chums, though the poor fellow had neither profession nor property, but is wholly dependent on a relative for support. "My dear Mc. Fadden, I am delighted to see you among us. *Cead mille a failthe!* Our triumph is certain! The county is up! The fire of enthusiasm flashes in every bold peasant's eye! The spirit of the O'Neills, the O'Donnells, and the O'Dohertys of old, aye and of the volunteers, has come back to own our noble but down-trodden people. They are resolved to be serfs no longer. From the highest mountain to the lowest valley—from sea to lough—throughout the length and breadth of the land, liberty jumps forth from the green bushes and bounds gloriously over the plain, like a hare on the heathery hill! The Orange ascendancy, the unholy monopoly of the representation of this great county by an aristocratic clique is at an end. The knell has sounded—they feel the death-chill in their hearts—aye and I hear the death-rattle in their throats. I swear by the memory of the dead at Skibbereen, and by the martyrdom of the illustrious John Mitchell, the greatest and best of living men, that I will never cease to agitate, agitate, agitate, till the people of this county are free, and till their magnificent example kindles a fire throughout the land that will consume despotism to ashes! See," he continued, his eyes in a fine phrenzy rolling—"See what this infernal landlordism has done now! they have just turned us out of the Kilbracky Arms Hotel! There is liberty and equality for you! There is freedom of election! Not only that, but they have sent the police to pull down our platform before the court-house, the pillars of which they have daubed over with an inflammatory address from the grand-master of the Orange Lodge—curse upon them!"

Fortunately the little fiery agitator, and my would-be-colleague in the representation, was interrupted here, or he might have gone off in spontaneous combustion. We took up our quarters in an inferior hotel, where some of the Presbyterian clergy were waiting for us. One of them, a young, gentlemanly person, though very active and persevering, was most unlike an agitator; he was so gentle, amiable, and placid. Two others, more advanced in life, were seated at a table, conning the ponderous MSS. that contained their speeches, with breaks here and there for the "loud and tremendous cheers" with which the audience would be sure to salute their climaxes. One of these gentlemen was a fresh, hale, large man, with florid complexion; frank, decided, and energetic in his manner, and easily kindled into fierce indignation against landlord oppression. He was very popular and effective as a speaker. The other was a singular genius. Shabbily dressed, with a sallow complexion, coarse features void of expression, eyes overshadowed by a projecting mass of bone and bristling brows, and a retiring forehead. His paragraphs were all interlarded with rhymes of his own composition, very comical and quaint; and he always spoke with a large old gingham umbrella in his left hand, even in the sunniest dog-days. He was a good man, but no Solomon; a profound admirer of Milton Byron Woodcock, whom he considered one of the greatest orators of the age, and whom he celebrated in a poem which began thus:—

"Hail, Woodcock, grand!"

The committee prepared resolutions for the public meeting. One of them recognised me as the most fit and proper person to represent that county in parliament. How they found out *that* I could not divine. They had never seen me before. They knew nothing of me but what I told them myself. However, a platform was erected in the open air, where the authorities could not interfere. The chair was taken by a gentleman from a neighbouring town, and the speakers thundered at great length against the late members, as the abettors of oppressive landlordism, and the enemies of popular rights. The cheering was vehement, especially when warlike sentiments were uttered. My friend Woodcock lauded me to the skies, ascribing to me every talent and virtue under heaven; and when he introduced me to the meeting as the adopted candidate, I was received with thunders of applause, waving of hats, &c. My dashing style of speaking took with them exceedingly. When I told them that not words but deeds was my motto, and that as a proof I had that day lodged a large sum of money in the bank to meet the expenses of the election, they were in ecstacies; and when, alluding to some statements of Lord Solomon Bullock, I said, suiting the action to the word, that I would trust him just as far as I could throw a bullock by the tail, their acclamations were tumultuous, and the cacchinations tremendous. Indeed, the meeting went off gloriously. The Rev. Mr. Downright, the Presbyterian, shook hands theatrically with the Catholic Archdeacon, which had a fine effect; and the Rev. Mr. Rhymer, the other Presbyterian, concluded his oration with a poetical tribute to myself, the chorus of which was as follows:—

"We'll show up their crimes with the lamp of Aladdin,
We'll rout all their forces, led on by Mc. Fadden.
Mc. Fadden, Mc. Fadden—Hurrah for Mc. Fadden!"

After the meeting, a large number of my supporters dined together, when the enthusiasm actually boiled over. Catching the infection, I quite lost the *nil admirari* spirit which I had imbibed in the London clubs. I lauded the fine qualities of the Irish peasantry—their genius, their intelligence, their noble independence, their love of religious freedom, and their manly suffering for the faith of their fathers. I hinted mysteriously, and in a careless manner, at my own high aristocratic connexions, which I said threw those of my opponent into the shade; but I added that I despised rank, and considered that honest labour was the true nobility. Fortunately, they did not question me closely as to my political principles, else I should have broken down. I had never before the last week spent a thought on Tenant Right or Tenant Wrong. My sympathies had been with the landlords, as a matter of course, for I was an Irish landlord myself. But my creed was Sharman Crawford's bill, which I resolved to swallow whole and entire, principles and details, though I knew almost as little about it as a Scotch university professor knows about the *Confession of Faith* which he is compelled to sign. I had good reason to congratulate myself when I saw what befel an editor, newly imported from that country, who was called on to respond to the toast of "The Tenant Right Press." As the press is always last on the list of toasts, by way of showing the public estimate of its importance, the wine had ample time to do its work even on the hard head of Sawney. In fact, he was very nearly in the condition of the Edinburgh advocate, who was returning from a dinner-party so far gone that he could not recognise his own house. His servant was at the door washing the steps, when the learned gentleman stood as well as he was able, and said—"Lassie, do you ken whar's the house of Mr. Clark, the advocate?"

"Lord bless us, Sir!" she exclaimed, "yeare Mr. Clark, yoursel."

"I ken that, you huzzy," he replied, "but I asked you whar was Mr. Clark's house?"

The editor, almost equally in the dark on Tenant Right, rose and said, "I dinna weel ken what you mean by Tenant Right." Great uproar; cries of "Put him out!" "Does he understand Sharman Crawford's bill?" "Throw him out through the window!" "Down, down, we won't hear him!"

In the midst of the commotion I was glad to retire to a private room to talk with some farmers, who wanted to know from me, who never entered their county before, why their names were not inserted in the voters' lists, although they had paid their poor-rate. I told them I should have the rascally poor-law clerk punished for the omission, inquired for their wives and children, shook them by both hands, urged them to canvass every voter in their neighbourhoods, and to set the women's tongues upon any who was likely to be tempted to sell his country. They went off delighted, and I could hear them proclaiming me to their friends in the street, "The finest gentleman they had ever seen."

How the matter went on I must reserve for the second part of my narrative.

JOURNAL OF A POOR VICAR.*

Dec. 15, 1764.—To-day I have received ten pounds sterling from my patron, Dr. Snart, being my half-year's salary. Although I have fairly earned this money, it has been given me in a way that pained me very much. At first I was made to wait more than an hour in a cold ante-room at the rector's, and at last was introduced into his study. He was seated in a large arm-chair, beside a table on which some money was lying. I bowed several times very respectfully, and he acknowledged it by nodding slightly, and by pushing back his black woollen cap, which, however, very soon returned to its ordinary place.

The rector has really a great deal of dignity in his manner. I never go near him without experiencing a feeling of awe. I am quite sure I would not feel more constraint in the presence of the king. He did'nt ask me to sit down, though he knew that I had on that morning walked eleven miles on foot, and that the weather was very bad, and more than that, that the time I had passed in the ante-room was not sufficient to rest my wearied limbs. The rector pointed with his finger to the little pile of money on the table.

On my way from home I had been framing in my mind a form for the request I was about to make for an increase in my salary. I had turned it over in my head a hundred times. The moment was now come when I should speak it; my heart beat violently. How unfortunate that I could not conquer my timidity, when I had only a few simple words to say—only to ask what was just! I was as much agitated as if I was on the point of committing a bad act. I made an effort to open my lips, but found that my thoughts, words, and even my voice were gone. I trembled exceedingly, and the cold sweat dropt from my forehead. "What's the matter?" said the rector.

"I—sir—I—everything is so dear now-a-days,—I cannot live any longer on so small a salary."



VISIT TO DR. SNART.

* A diary written in the eighteenth century, by a Wiltshire clergyman, furnished Goldsmith with the idea of the "Vicar of Wakefield," and Henry Zschokke with that of the above.

"So small! sir; so small a salary! Twenty pounds a year! Do you know what you are saying? Why, my gracious, if I wished I could get a curate for fifteen pounds a year."

"A curate for fifteen pounds! But after all, it's not impossible; if he was a single man, without a family, perhaps that would be enough for him to live on."

"But, *your* family, I think has not increased. You have still only two daughters, eh?"

"Yes, sir, but they are growing bigger; Jenny, the eldest, is now eighteen, and Polly will soon be twelve."

doubtless, been telling him something bad about me. He used generally to invite me to dinner; and to tell the truth, to-day I had counted on it, for I had started from Crekelade at daybreak without any breakfast. I then went into a baker's shop, bought a small loaf, and set out on my way home. Ah, how sad and discouraged I felt as I went along! I cried like a child, and my tears fell thickly on the bread which I was greedily devouring.

Come, Thomas, fie! fie! Are you not ashamed of your weakness? Is not God Almighty still on high to protect you? What would it be if you had lost your situation altogether? What is



RECEIPT OF THE RECTOR'S LETTER.

"So much the better; they can work."

I was about to reply, but he did'nt give me time. He got up, and went over to the window, and rubbing his fingers against the glass, said—"I can't talk about your affairs to day; you must see whether you can't fulfil your duties for fifteen pounds a year. Think over it at your leisure, and if you think you can't do it, I hope you will be able to find a better place next year."

He raised his cap, and bowed politely; I took the money and went out of the room, muttering something about throwing myself on his kindness and generosity. I was thunderstruck. Never—no never, had he received me so coldly. Some one had,

it after all but five pounds less? True, that is the quarter of your salary, and that with fifteen pounds a year there will be only ten-pence a day to provide food and clothing for three persons; but what matters that? He who clothes the lilies in white and gives to the young ravens their nourishment, cares for us. Besides we shall only have to dispense with some of our present comforts.

Dec. 16.—Yes, my Jenny is an angel. Her soul is still more beautiful than her face. I am almost ashamed of being her father, she is so much more pious and better than I. Yesterday I had not courage to tell my poor girls of our new misfortune;

and to-day, when I at last forced myself to speak of it, Jenny at first looked grave, but suddenly becoming as cheerful as ever, she said,

"Is it this that disquiets you, my dear father?" "And have I not good reason, my dear child? How shall we ever escape debt and annoyance? I don't even know how we shall be able to subsist, we are in want of so many things as it is; but with fifteen pounds a year we shall not procure even the common necessaries of life?"

Jenny passed one arm round my neck, and pointing towards heaven with the other, said, "Think of Him who is there!"

Polly then sat down on my knee, and said very gaily,

"I want to tell you something. I dreamed last night that it was New Year's Day, and that the king had come to Crekelade. It was a great honour for you, for he got down off his horse at our door and came in. We were greatly put about how to provide dinner for him, but he had brought his own provisions in vessels of gold and silver. The trumpets were sounding, and the drums were beating in the street, and, dear father, he gave you a bishop's mitre on a cloth cushion; a pointed cap, you know, such as one sees in the old picture books. You then took it and put it on your head, and it became you very well: why, I was nearly dying with laughter, and Jenny was grumbling at me. This dream certainly means something, and remember that it now wants but a fortnight of New Year's Day.

"Dreams, Polly," said I, "mean nothing."

"Dreams, father," said she, "come from God."

I don't believe this; but, nevertheless, I will make a note of this singular dream, to see, if by some chance or other, it may not prove a happy omen. It's not impossible, for instance, that a New Year's gift may relieve us from some of our difficulties.

I have been looking after my accounts all day; but I don't like the work—it gives me a headache, and makes my heart sad.

Dec. 17.—Thank God! I am free from all my debts. I have paid seven pounds ten shillings in five different places, and now I have only two pounds nine shillings left, and we have to live on this for six months. O my God, come to our aid! I must give up all hope of the black breeches I saw hanging up at Cutboy the tailors's door, although I am sadly in want of them; they have been already worn, but they are still good, and Cutboy would have sold them me cheap. The poor girl, I pity her when I see her in her light coverlet in this cold weather. As to Polly, she will be content with the clothes her sister can make for her out of her old dresses. I must also give up that newspaper, that I subscribed to jointly with Westburn the weaver. This is a sacrifice, for without a newspaper one knows nothing at Crekelade of what is going on in the world. At the last races at Newmarket, the Duke of Cumberland won a wager of £1,000 from the Duke of Grafton. It is truly remarkable how the words of Scripture are always verified: *To him that hath shall be given, and from him that hath not shall be taken away even that which he hath.* Look at me, who have lost five pounds out of my small salary.

Fie, Thomas! murmuring again, and what for? Because you can't read the newspaper any more. What a shame! You will be able to hear by report whether General Paoli has been able to save the liberty of Corsica. The French have sent aid to the Genoese, but Paoli has twenty thousand men, and all veteran soldiers.

Dec. 18.—Ah! how happy we are still in our misery!

For a mere trifle, Jenny has bought a very good old gown from Mrs. Bard, the second-hand clothes dealer, and the poor girl is at this moment making a new one of it along with Polly. Jenny is a fine business girl, and can market much better than I, for who can resist her sweet voice. Now there is joy in the house! On New Year's Day Jenny will have a new dress. Polly is making all sorts of remarks and prophecies on this subject. Verily, the Doy of Algiers has not had more pleasure in receiving the rich presents of the Venetians, the two diamond rings, the two watches set in brilliants, the gold-mounted pistols, the rich carpets, the housings, and the twenty thousand sequins which accompanied them.

Jenny thinks that we ought to reduce the expenses of our table to make up for the cost of her dress; so we'll buy no more meat. It is but right. Westburn is a fine fellow. I told him that I would be obliged to throw up the paper, because my salary was no longer the same, and that I wasn't even sure of keeping my curacy. He shook my hand warmly, and said, "I'll take the paper myself, and you shall read it all the same."

This proves that one ought never to despair. There are more good people in the world than we think.

Evening of the same day. The baker is a very harsh man. I have paid him all I owe him, and when poor Polly remarked that his bread was very small and burnt, he made a noise that gathered a crowd in the street, telling her that he would give us no more credit, and that we might buy our bread elsewhere. I could not help pitying Polly, and we had great difficulty in pacifying and consoling her.

I don't know how all the Crekelade people manage to know the news beforehand; everybody is now talking of a new vicar that Dr. Snart is sending here in my place; this would be the death of me.

The butcher must have heard something also. He has just sent his wife to complain to me of the hardness of the times, and to say that henceforward he could only give me meat for ready money. In all other respects the woman was very civil. She said that we were entitled to the respect and affection of all the inhabitants. She advised us to make our little purchases at Colswood, from a butcher who had a large capital, and would wait. I did not like to tell the good woman that this same butcher treated us very badly a year ago; that he made us pay a penuy a pound more for meat than others; and when I complained of it, he said that since I often kept his money for a year, I should pay interest for it.

I have now only forty-one shillings and threepence. How shall we live on this for several months? No one will give me any more credit, and if Dr. Snart sends another curate here, I shall be in the street without food.

Ah! well; God is in the street also.

Dec. 19.—I awoke this morning very early, and began to think what I ought to do in this painful position.

I thought of Mr. Sitting, my cousin, at Cambridge; but poor people have no cousins. If Polly's dream came true, and a bishop's mitre were conferred on me on New Year's Day, I should have all England for relations.

I have written and posted the following letter to Dr. Snart:—

"I write you this letter with great anguish. Every one says that you are about to send a new vicar to take my place. I know not whether this report is well founded, or whether it has arisen merely in consequence of what I told different people of my last interview with you.

"I have faithfully and conscientiously discharged the duties of my office. I have taught the word of God zealously. No complaint has been made against me, and my own conscience does not accuse me. I humbly begged of you to increase my small emoluments, but you spoke on the contrary of reducing a salary which is scarce sufficient to supply the necessaries of life to myself and my family. May your generous heart relent.

"I have held this parish for sixteen years, under your venerable predecessor, and six months since you became rector. My hairs are beginning to turn grey. Without friends or protectors, I have no means of procuring another living, and I have not the knowledge necessary for earning my livelihood in any other way. My life, and that of my two children, are in your hands. If you cast us off, we have no resource but to beg.

"My daughters, already grown up, in spite of our close economy, cause me, of course, some expense. The eldest fills the place of a mother to her younger sister. We keep no servant. She is cook, laundress, seamstress, and all, and I myself act as carpenter, mason, and gardener.

"Up to the present time God's goodness has sustained us. None of us has been ill; we have had to pay nothing for medicine. My daughters have in vain sought needlework through the village; but the people are nearly all poor, and every one does her own sewing.

"It is a very hard thing to supply all our wants with twenty pounds sterling; how then shall I do with fifteen? But I have confidence in your humanity and in God, and I pray of you to put an end to my anxiety."

THE FAMILIES OF PLANTS.

PRIMULACEÆ, OR PRIMROSE TRIBE.

Corolla hypogynous. Ovarium free, one-celled; ovules indefinite. Seeds sessile, peltate, or erect. Embryo straight, enclosed within a fleshy albumen. Herbaceous plants.

The flower which is taken as the pattern for the other

Fig. 267.



Primula Auricula Nigra.

members of this order, is perhaps, of all others, not even the rose excepted, the most familiar.

> "Welcome, pale primrose, starting up between
> Dead matted leaves of ash and oak, that strew
> The every lawn, the wood, and spinny through,
> 'Mid creeping moss and ivy's darker green;

Fig. 268.



Cyclamen.

> How much thy presence beautifies the ground!
> How sweet thy modest, unaffected pride,
> Glows on the sunny bank and wood's warm side!"

The leading characters which make up our notion of the primulaceæ are derived from the regularity of the corolla, and the particular nature of the seed-vessel. This seed-vessel gene-

Fig. 269.



Moyoporum.

rally appears like a little ball, neatly rounded, and of a smooth and delicate texture. It is without partitions, and the seeds are borne upon a central column. If the calyx, or cup, of a primrose

Fig. 270.



Selago Gillii.

be examined after the fall of the corolla, a round polished capsule will be seen in the centre; if a cut be then adroitly made round

it, so as to divide the case, without disturbing anything it contains, a little central column will be exposed to view, bearing a crowded knot of seeds. Here, then, is one of the distinguishing marks of this family, which may be easily remembered.

Fig. 271.



Globularia Alypum.

The flower-stalk of the common primrose rises apparently from the root, whence it has been technically called a *scape*. Flowers are in the primrose commonly unconnected with each other, yet a

Fig. 272.



Utricularia.
1. Plant of the natural size. 2. Magnified Leaf.
3. Magnified Fruit.

variety has been found resembling the common primrose in all respects, except that it had its flowers in an *umbel*, that is, having several blossoms on the same flower-stalk. It would appear, therefore, that the common mode of producing one solitary flower from the same flower-stalk, was a deviation from the regular course.

The *primula auricula nigra* (fig. 267), is a plant of the Alps, which has furnished numerous varieties.

The yellow loose-strife is an elegant ornament of watery places, where shade abounds along the reedy banks of streams. In such situations it is found growing among the common valerian and the purple-spiked willow herb; but it is not so common as they are. The stem, which is three feet high, is terminated by a beautiful cluster of yellow flowers.

The poor man's weather-glass is a pretty little plant, extremely common in corn-fields, flowering from May till September. Professor Martyn observed that this sensitive little flower, which never expands its corolla in rainy weather, or when the air is moist, opens its flowers on fine days, from eight in the morning till four in the afternoon. From these curious circumstances, the peasant

> "Can in the pimpernel's red-tinted flowers,
> As close their petals, read the measured hours,"

and hence the name which has become so familiar. It is thus pictured by the elegant and vivacious pen of Miss Twamley:—

Fig. 273.



Verbena Officinalis.

> "Now the wise little flower, wrapped safe from harm,
> Sat fearlessly waiting the coming storm,
> Just peeping between,
> Her snug cloak of green;
> Lay folded up tight,
> Her red robe so bright,
> Though broidered with purple, and starred with gold,
> No eye might its bravery then behold."

We add only to our account of this family the *cyclamen*, or sow-bread (fig. 268), so named because its tuberous roots, notwithstanding their very acrid character, are eagerly devoured by swine. It is abundant in Sicily, and is the chief food of the wild boars of that island.

MYOPORNIÆ.

Corolla nearly equal. Stamens four, with the rudiment of a fifth. Ovarium free, two, four-celled; ovules four, pendulous. Seeds four. Embryo cylindrical, in the axis of a firm albumen. Radicle superior.

Of these plants derived from New Holland, we give a specimen in the *myoporum* (fig. 269).

SELAGINEÆ

Corolla tubular. Stamens four, seldom only two. Ovarium free, very minute. Fruit membranous, two-celled. Seed solitary in each cell, erect. Embryo in the axis of a fleshy albumen. Radicle superior.

These plants, found at the Cape of Good Hope, have no particular properties; many of them, however, are odorous. The *selago gillii* (fig. 270), is a cultivated species, found in botanical gardens.

GLOBULARINEÆ.

Corolla tubular. Stamens four. Ovarium free, one-celled; ovule solitary, pendulous. Seed pendulous. Embryo straight, in the axis of a fleshy albumen. Radicle superior.

These plants, of which we give *globularia alypum* as a specimen (fig. 271), inhabit the temperate parts of Europe.

LENTIBULARIÆ.

Corolla monopetalous. Stamens two. Ovarium one-celled. Seeds minute. Albumen none. Embryo, sometimes undivided. Flowers single, or in spikes.

These plants are natives of marshes, rivulets, or fountains, in all parts of the world, especially within the tropics. The engraving (fig. 272), presents to view the *utricularia*.

Fig. 274.



Hyssopus Officinalis.

VERBENÆ. THE VERVAIN TRIBE.

Corolla tubular. Stamens four, sometimes only two. Ovarium free, two, or four-celled; ovules four, erect, rarely pendulous. Seeds erect. Albumen none, or very thin. Embryo straight. Radicle inferior.

The common vervain, *verbena officinalis* (fig. 273), is a branched, upright, dark green plant, with small purple, almost regular flowers, growing all along the upper parts of all the branches. It is common in England, flowers in July and August, and is found in dry, chalky, and gravelly places. A delightful, lemon-smelling, woody, little shrub, is frequent in our greenhouses, and called vervain or verbena.

LABIATÆ.

Calyx free. Corolla hypogynous, monopetalous, irregular. Stamens inserted on the tube of the corolla, either four or two. Radicle inferior.

Though this is a family of humble plants, they attract attention and call forth culture from their aromatic character. They are very abundant, especially in the northern temperate regions. The plants called *labiatæ*, or labiate plants, derive their name from the peculiar form of the corolla, which seems to have a pair of *lips;* but it might be called the *mint* tribe, from some of its best known species.

Mint was well known to the ancients. In Ovid's story of "Baucis and Philemon," rustics are described as preparing the table for supper, in the course of which,

> "They rubb'd it o'er with newly gathered mint,
> A wholsome herb that breathes a grateful scent."

"As for the garden mint," says Pliny, "the very smell of it alone recovers and refreshes the spirits, as the taste stirs up the appetite for meat, which is the cause that it is so general in our acid sauces, wherein we are accustomed to dip our meat." How much it is used in this country is well known. The species of mint, called peppermint, is said by the French botanists to have been found only in this country. Pennyroyal, that favourite mint of the ancients, and well known in England, is milder than the other mints, and not so efficacious.

Sage, as the plant is called by us, derives its name from the French word *sage* (wise), from the property it is said to possess of

Fig. 275.



Lamium Album.

strengthening the memory, and of thus conferring on man the attributes of wisdom. An old medical author thus specifies some other qualities it was supposed to possess:—

> "Sage helps the nerves, and, by its powerful might,
> Palsies and fevers quickly puts to flight."

Aiton says that sixty species have been brought to this country from different parts of the world, the earliest of which was the Syrian sage, clary *sclarea*.

Thyme derives its name from a Greek word, signifying courage and strength, it having been supposed to revive the spirits. Lemon-thyme is less pungent than the common garden-thyme, but much more grateful to the palate, and, therefore, more frequently used. To hyssop there are several references in the Scriptures. It appears to have grown naturally both in Egypt and Syria, and several varieties exist in this country. We give an engraving of the *hyssopus officinalis* (fig. 274); and another of the *lamium album* (fig. 275), also placed in this family of aromatic plants.

MEMORIES.

A BEAUTIFUL and happy girl,
With step as light as summer air,
Eyes glad with smiles, and brow of pearl,
Shadowed by many a careless curl
Of unconfined and flowing hair:
A seeming child in everything,
Save thoughtful brow and ripening charms,
As Nature wears the smile of Spring
When sinking into Summer's arms.

A mind rejoicing in the light
Which melted through its graceful bower,
Leaf after leaf, dew-moist and bright,
And stainless in its holy white,
Unfolding like a morning flower:
A heart, which, like a fine-toned lute,
With every breath of feeling woke,
And, even when the tongue was mute,
From eye and lip in music spoke.

How thrills once more the lengthening chain
Of memory, at the thought of thee!
Old hopes which long in dust have lain,
Old dreams, come thronging back again,
And boyhood lives again in me;
I feel its glow upon my cheek,
Its fulness of the heart is mine,
As when I leaned to hear thee speak,
Or raised my doubtful eye to thine.

I hear again thy low replies,
I feel thy arm within my own,
And timidly again uprise
The fringed lids of hazel eyes,
With soft brown tresses overblown.
Ah! memories of sweet summer eves,
Of moonlit wave and willowy way,
Of stars and flowers, and dewy leaves,
And smiles and tones more dear than they!

Ere this, thy quiet eye hath smiled
My picture of thy youth to see,
When, half a woman, half a child,
Thy very artlessness beguiled,
And folly's self seemed wise in thee;
I too can smile, when o'er that hour
The flights of memory backward stream,
Yet feel the while that manhood's power
Is vainer than my boyhood's dream.

Years have passed on, and left their trace
Of graver care and deeper thought;
And unto me the calm, cold face
Of manhood, and to thee the grace
Of woman's pensive beauty brought.
More wide, perchance, for blame than praise,
The school-boy's humble name has flown!
Thine, in the green and quiet ways
Of unobtrusive goodness known.

And wider yet in thought and deed
Diverge our pathways, one in youth;
Thine the Genevan's sternest creed,
While answers to my spirit's need
The Derby dalesman's simple truth.
For thee, the priestly rite and prayer,
And holy day, and solemn psalm;
For me, the silent reverence where
My brethren gather, slow and calm.

Yet hath thy spirit left on me
An impress Time has worn not out,
And something of myself in thee,
A shadow from the past, I see,
Lingering, even yet, thy way about;
Not wholly can the heart unlearn
That lesson of its better hours,
Not yet has Time's dull footstep worn
To common dust that path of flowers.

Thus, while at times before our eyes
The shadows melt, and fall apart,
And, smiling through them, round us lies
The warm light of our morning skies—
The Indian Summer of the heart!—
In secret sympathies of mind,
In founts of feeling which retain
Their pure, fresh flow, we yet may find
Our early dreams not wholly vain!

J. G. WHITTIER.

THE RAILWAY BOOK STALL.

A FEW evenings ago we entered a carriage of the up-train from Southampton to London, and had hardly taken our seat when we found that we were favoured with a companion of what may be designated "the old English sort." The salutation with which our *entrée* was hailed was uttered in so easy and honest a way as to leave no room for anything but an equally polite acknowledgment, even had we been otherwise inclined; and the response seemed to rouse our new friend to the expression of all his views and feelings in reference to railways in general, and his own travelling in particular, some part of which may not be uninteresting to our readers.

"My theory, sir," said he, "is, that Lord Bacon uttered a splendid sentiment when he said something about full men and reading, and all that sort of thing,—making men full and keeping them so. Now I think if we could only keep *full*, we should be all right. Body and mind both, sir," said he, warming with the subject. "I hate vacuums, sir; I've just made my body a plenum; and now, sir," he added, producing two newspapers and three magazines, besides Bradshaw, from his great-coat pockets, "I like to keep my mind full."

We could not do otherwise than express assent to so profound an opinion, and he at once remarked in continuation, "Now, sir, I consider those book stalls on our railway platforms to be the most important improvements in our locomotive system, next to the refreshment room. You can't fill your mind, sir, without first satisfying your body; but," he added, "when that is full, then you may feast your soul, sir. I sum up true happiness in Bacon's words, with a slight addition, 'Refreshment and reading make a full man.'" And, then, having pulled some black worsted stockings over his boots, tucked a large pocket-handkerchief inside his waistcoat to keep the cold out, and turned up the collar of his great coat, he planted his shoulders against the corner of the carriage, and—went to sleep!

We shall not stay to inquire whether our friend had been most successful in the repletion of his bodily or his mental system, but we suppose that his obliviousness to passing events during the remainder of that journey was to be attributed to the cause which others allege as an excuse for similar *apparent* sleepiness, that they only close their eyes because they find that they can think the more profoundly when thus in communion with what the Germans call "the depths of their own moral consciousness."

Now, though there was, doubtless, something of disparity between the theory and the practice of our companion in travel, yet there was a good deal of truth in what he said; and we have to invite the reader to notice the two departments of aliment which he regarded as so beneficial in their influence upon the welfare of the travelling public. But as it might be regarded as indicating something of confusion of thought, were we, as did our friend, to speak in the same breath of the influence of literature and of luncheons, of popular novels and of sausage rolls, of refreshment for the mind and provision for the body, we shall be content for the present with the consideration of the former, and, perhaps, on another occasion request the attention of the reader to that secondary, but important, department of our railway economy, which has to do with the satisfying of the physical wants of the inner man.

The influence which our railway system has produced on all the general and social relations which unite the inhabitants of lands to which their operation has been extended, could scarcely fail to produce some important results in the literature of the

country. If it be a fact that the Press has a most powerful influence in guiding the destiny of a people, it is at the same time true that the character of the people will find its manifestation in the current literature of the day; that the genius and taste of a nation will find its expression in the printed as well as in the spoken thoughts of the age. When educated men were few, and the possession of books was restricted to the wealthy and the learned, the offspring from such minds would be calm, thoughtful, but perhaps energetic and cold. But in an age like this, when the pulse of the people indicates restless and almost morbid activity, and when the tendency of almost all classes is rather to overtask the mental and physical fabric, and to crowd into the brief annals of a year that which others would have thought might have fairly occupied ten, and when the demand is for much intelligence in a small space at a low price, then it would be anticipated that a great demand would be made in new channels, and that enterprising men would come forth, not only to satisfy the new cravings of the public taste, but to make it the occasion of giving no small impetus to the advance already made. Now just so has it been with the openings which have been made for the publication of certain classes of popular literature; the consideration of some facts in reference to which will be well worthy the attention of those who are at all interested in the rise and progress of the national taste and education.

The development of our railway system insensibly drew large numbers of people into what may be designated locomotive habits. So easy did conveyance from place to place become, that "reasons, plenty as blackberries," were found for running in all sorts of directions, to all kinds of distances, for every variety of purpose, which had never before exercised sufficient influence to make men undergo the burden and the annoyance of a long journey by coach. And when the novelty of the new style of locomotion had worn away, and travellers did not care to spend successive hours in watching the sides of cuttings, the walls of embankments, or the diversity of scenery presented by the surrounding neighbourhood through which the line passed, a companion within the railway carriage was desired, and the occasional vendors of newspapers and books, who were permitted to come and go from the stations as they thought well, found a profitable exercise for their calling.

As time passed on, the new business assumed something more of shape and definiteness, and the salesman found it worth his while to maintain more of system and of punctuality in his arrangements; and at length the companies permitted their disabled or deserving servants, or the *protégé* of a director or secretary, to supersede the first batch of stragglers, and to exercise a vocation for which even they had no previous qualification.

The union, by the iron links of new railways, of cities which were far distant from each other, gradually led to more and more of time being spent by travellers in the railway carriage, and the newspaper was found to be insufficient for the journey. The demand was, after a fashion, satisfied by the introduction to the railway platform of cheap books of a low order, as respects every literary and moral quality, and large numbers of French novels, unfortunately of a questionable character, were offered for sale, simply because the purchaser could buy them at a lower figure than any other publication of a similar kind. The public bought the only wares presented to them, and the caterers for the taste of the travelling readers flattered themselves that there was a general want among all classes of the peculiar style of literature which they thus brought forward. The more eminent booksellers and publishers stood aloof; while others were but too eager to supply any demand, at whatever injury to the public character; and we are assured, that every addition to the stock was positively made on the assumption, that persons of the better class, who constitute the larger portion of railway readers, lose their accustomed taste the moment they enter the station and present themselves to the railway librarian.

When it became evident that the vendors of books and newspapers were deriving large sums of money from their business, the directors of the several companies resolved to make a charge for permission to carry it on; and tenders were advertised for the largest amount which would be offered for the privilege. In some cases £200, and in others £600, per annum have been deemed a fair rental for the book-stall at a London terminus. At one of the most important stations in the metropolis, a bookseller, who at one time professed himself unable to contribute £60 by way of rent to a benefit society established for the servants of the company, offered, two years afterwards, ten times that sum when the privilege was put up to public auction. The sums now paid for the monopoly of sale at the stations is very large, and, indeed, it is probable, that only by great activity in developing every resource which can be laid open at these stations, the experiment will be as remunerative as it merits.

When Messrs. W. H. Smith and Son, of the Strand, obtained the right of selling books and papers at the stations of the London and North-Western Railway Company, they found that their predecessors had been in the habit of selling the class of books to which reference has been made, which they bought cheaply to sell at a large profit, for the more despicable their commodities the greater their gains. The new proprietors resolved on a thorough clearance, and a new change of system, and this has been carried out with great energy and perseverance at all their stations on the North and South-Western, and Great Northern lines, with what results we shall presently see.

It is a matter for regret that the same plan has not been pursued in some other directions, where large returns rather than anything else seem to be preferred. Yet what can be said, when the writings of "Eugene Sue" may be seen in the hands of young ladies in first-class carriages, and people ask at stations for books which they would be ashamed to be seen reading at home. A writer who has spoken powerfully on this subject assures us, that his attention being led to an inquiry into the style of works sold at some of the metropolitan termini, he visited them all for the purpose of ascertaining the real state of the case, and that, as the result, he found it a painful and humiliating inspection. He discovered masses of unmitigated rubbish piled upon the shelves, and that the purchasers confirmed the selection made for them. The questions naturally suggested themselves—were all the buyers daily travellers? Did they daily make these precious acquisitions? If so, it was a dismal speculation to think how many journeys it would take to destroy for ever a literary taste that might have been perfectly healthy when the owner paid for his first day-ticket. Here and there might be seen crowding among all that rubbish some old friends, looking strange indeed amid that very questionable company—like well-dressed gentlemen compelled to take part in the general doings of Rag-fair.

A visit to the Euston terminus furnished different results. Here, he says, we searched diligently for that which required but little looking for in some other directions, "but we poked in vain for the trash. If it had ever been there, the broom had been before us and swept it clean away. We asked for something 'highly coloured.' The bookseller politely presented us with Kügler's 'Handbook of Painting.' We shook our head, and demanded a volume more intimately concerned with life and the world. We were offered 'Kosmos.' 'Something less universal,' said we, 'befits the London traveller.' We were answered by Prescott's 'Mexico,' 'Modern Travel,' and Murray's 'Handbook of France.' We could not get rubbish, whatever price we might offer to pay for it. There were no 'Eugene Sue's' for love or money—no cheap translations of any kind—no bribes to ignorance or unholy temptations to folly. 'You'll soon be in the *Gazette*,' we said, commiseratingly, to the bookseller. The bookseller smiled. 'You'll never sell these things,' we added mildly. 'Constantly; we can sell nothing else.' 'What! have you nothing for the million?' 'Certainly; here is 'Logic for the Million;' will you buy it?' 'Thank you, but surely books of a more chatty character.' 'Chatty—oh, yes! 'Coleridge's Table Talk' is a standard dish here, and never wants purchasers.'" Deeming our friend facetious, adds the writer, we entered into further conversation and more minute inquiry, which, however, only corroborated the preceding remarks—a result which is fully sustained by our own experience in the matter.

The establishments of Messrs. W. H. Smith and Sons, on the

three lines already referred to, are more than sixty in number, the stands costing no less than two thousand two hundred guineas. At each of these there is an extensive stock of standard and current literature of the day, with magazines, periodicals, and newspapers on the day of publication. It may, we believe, with truth be said of them, as they affirm of themselves, that they have acted under the impression that works of permanent value will be readily purchased by the railway traveller, while they have been careful to provide publications of a thoroughly respectable character, suitable to the tastes and inclinations of all who travel on the lines with which they are connected.

It is gratifying to find that the efforts which have been made to supply the railway book stalls with really valuable works have been rewarded. The books sold will of course depend on the taste of the purchasers, but they are mostly standard productions of their kind which meet the readiest sale, while particular stations have their idiosyncracies. The sportsman will readily spend money on such works as "Sponge's Sporting Tour;" "The Hunting Field;" "The Stud," for practical purposes; and "The Chase," by Nimrod; two, three, or four of these frequently being bought at the same time, while a real or affected indifference is manifested to the cost of the books, or the amount of change returned. Scientific works by modern writers, as "Humboldt's Kosmos," and "Herschel's Astronomy," find a ready sale at Euston-square and Birmingham, while at some stations they can scarcely be disposed of to any class of travellers. The standard poetry of our own time is highly appreciated, and large sales are effected of the writings of Coleridge, Longfellow, Tennyson, Bryant, Rogers, Camphell, Hood, and Keats. Cheap editions of popular novels also meet with no small degree of patronage, and large numbers of the works of Dickens, Bulwer, James, and Scott, are disposed of. Books which are attracting general attention throughout the reading public are, of course, largely enquired for at the platform stalls, and thus Macaulay's "History of England," and Layard's "Nineveh," have been highly patronised, their popularity being the more fully indicated by the fact, that their sale is rather in defiance of a general rule in making purchases at railway stands—not to buy any two-volume editions. Of "Uncle Tom's Cabin," more than 20,000 have been sold by Messrs. Smith's agents alone, and hey have still a "steady sale" of about a thousand copies a week.

One of the earliest works which met with a ready patronage, even under the former arrangements of the hook stalls, was "The Narrative of the Insurrection of 1745," by Lord Mahon. This work is the better deserving of notice, inasmuch as its having arrested the attention of Mr. Macaulay, at some railway book stall, suggested to his mind the idea of the "Traveller's Library," which by his advice was issued by Messrs. Longman, and which has been adorned by the productions of the pen of that gifted writer himself.

Theological works, except they be on subjects of special interest at the time, do not meet with an extensive demand. Hence, Baptist Noel's work on "Church and State," and the Bishop of Exeter's pamphlet on "Baptismal Regeneration," which had an unlimited sale at some of the stations, were exceptions to the general rule. Productions which require much thought in their perusal do not receive any great encouragement, and hence Pascal's works, though usually found upon the larger stands, are of almost too contemplative a class for this kind of readers.

Most of the stations have some peculiar feature of sale. The resident gentry readily make available the establishment of a stand in their neighbourhood; and those will buy liberally of attractive books who before, probably, have scarcely bought at all. The Manchester people are good purchasers, but it is very difficult to dispose of a valuable book at Derby, Leeds, or other stations in those districts. Yorkshire does not patronise poetry; and religious works hardly find a purchaser at Liverpool; while at Manchester, the other terminus of the same line, they meet with high demand. At Bangor, all books in the Welsh language must have a decided dissenting and radical tone, while English books at the same station must be high church and conservative. "Sophisms of Free Trade," by Serjeant Byles, sold largely in free-trade districts, while the answer to this *brochure* was scarcely asked for. Pamphlets are a dead weight, except on some striking subject by eminent men. "Wellington," a sermon, by the Rev. Thomas Binney, is rapidly selling. Immense numbers of "Bradshaw" are disposed of at the beginning of the months, and the rivals of the well-known guide-hook are comparatively without support.

In the newspaper department a great deal of business is transacted. Of the daily papers more than sixty packages are sent off every morning (except Sunday) into the country by the first down trains from London, varying in their weight from a few pounds up to more than a hundred weight and a half. The required number of copies of the several papers are obtained from the respective offices at an early hour in the morning, and having been assorted at the warehouses, are despatched in light carts first to the Euston station, and then on to the King's-cross terminus; cabs, or other means, are employed in the shorter journey to Waterloo. Sometimes a difficulty is experienced in obtaining a sufficiency of copies of the *Times* to meet the demand, and then a second batch has to be forwarded by later trains.

The inconvenience occasioned by the want of the intelligence communicated in the daily papers was illustrated not long since at Manchester. On Tuesday, November the 2nd, there was great consternation on 'change, in consequence of the train from London having arrived without a single morning paper. All were at a loss to know what to do; and the greatness of the privation, as was aptly remarked by one of the Manchester papers, furnishes some gauge of what business-men in the country would be without their daily intelligencers. Inquiry was made by the news-agents, and all that could be learned was that the van, filled with the morning papers for Manchester, had been somewhat unaccountably mis-sent somewhere, but whither, no one could tell. A telegraphic message was despatched to Liverpool to inquire if the missing van had strayed thither, but Echo, along the telegraphic wires, answered "No." Think of the Manchester Royal Exchange, at high 'change hours on a Tuesday, turned into a huge Calcutta black-hole of intelligence; everybody gasping for news, and none to be had for love or money. At length a gentleman, who left London in the morning, was found, who was obliging enough to lend his solitary copy for the benefit of the public; it was placed on a stand in the Exchange, and at first there was a rush like that which might be seen to read the news of a great battle and victory in the old war-time. During the afternoon further telegraphic inquiries were made of various stations along the line as to the whereabouts of the missing van, but without success. The guard of the train ultimately discovered the Manchester papers when he arrived at the Preston junction, and he left them there to come back by the North Union train; they reached the place of their destination about three o'clock in the afternoon.

The agents who, with their assistants, have charge of the stalls, are usually intelligent and active young men, who have served their apprenticeship in the trade. By careful watching of the course of events and the tastes of the public, and by constant attention to the details of their business, they are rising into a position of respectability which will elevate them to an equal *status* with their fraternity in the trade. It is worthy of remark, that the sale of works at stations does not appear to interfere in the least with what may be called the "regular" business in the towns in which the stations are situated.

Before leaving this subject, a story may be mentioned indicative of the activity and wit sometimes manifested by the news-boys, who aid the bookseller in the discharge of his vocations. It was on a Saturday afternoon, when a news-lad was passing up and down the platform at Watford, and exclaiming, as usual, to the passengers of a waiting train—"To-day's *Times*, gentlemen, to-day's Times!" when a traveller, attempting the facetious, said, "what's the use of to-day's *Times*? I'd give you a shilling for to morrow's!" when, to his surprise, the boy immediately handed to him the *Sunday Times*. For this, however, the passenger refused to pay—at least, not more than sixpence; but his companions made him keep his word, and give the sharp-witted lad a shilling for a sixpenny paper.

HARRIET BEECHER STOWE.



PORTRAIT OF HARRIET BEECHER STOWE; DRAWN BY H. ANELAY; ENGRAVED BY H. LINTON.

No author of modern times has achieved a reputation with such rapidity as Mrs. Stowe. We cannot point to another who has burst upon the world like a giant, and within two or three months became the talk and admiration of three great nations. Dickens, Thackeray, Hawthorne, and in short every author of note at the present day, has worked his way into notice by slow degrees, and won fame only by a long and hard-fought battle. Mrs. Stowe has carried it off by a *coup de main*. But, independently of her wonderful power as a delineator of life, its passions, miseries, struggles, and triumphs, she has circumstances in her favour, which place her on a vantage ground above all her contemporaries. "Uncle Tom's Cabin" is the expression of feelings which she had brooded over from her earliest childhood—hate as strong, hope as high, and pity as deep and tender, as ever abode in woman's breast. She did not write to amuse, nor hardly to instruct, but to arouse and horrify the world by an exhibition of a system of cruelty and injustice more savage than the razziaes of de Montford, and more inexcusable than the helotry of Sparta. To illustrate periods in history, costumes, manners, laws and institutions which have long since passed away, and are forgotten; to ridicule obsolete notions, or denounce social abuses, harmless perhaps in their origin, limited in their extent, and owing their

existence rather to apathy and neglect than to wilful perseverance in wrong-doing,—these are amongst the subjects which have from time to time employed the pens of the ablest novelists of the present century. For two hundred years there has existed on the continent and islands of North America, where Christ's religion is preached by the descendants of the Puritan fathers, and professed by a brave, civilised, free, and learned nation, a system of legalised rape, murder, abduction, adultery, robbery, mutilation, kidnapping, "worse than Popish cruelties and inquisitorial practices;" but no cunning hand depicted its atrocities. During all that period, Christian men have continued to perpetrate, and have aided and abetted others in perpetrating, enormities of which no priest of Juggernaut ever dreamed. Into contact with all this—all its evil, all its unutterable degradation, and its blood-guiltiness—Mrs Stowe was brought from her earliest childhood. Like a true woman, her sorrow and indignation lost none of their keenness from familiarity with the abuse. The constant sight of suffering in its direst forms, did not dry up the fountain of her sympathy, but made it run with a deeper flow. For years she brooded over this 'damned spot" on the civilisation of Christian America, until horror at its hideousness became a part of her being.

Owing to an accident, we can only present our readers with such particulars of Mrs. Stowe's life as can be gathered from the account of her and her family, furnished to *Frazer's Magazine*, by an "Alahama Man."

Harriet Beecher was born in Litchfield, about the year 1812. After the removal of the family to Boston, she enjoyed the best educational advantages of that city. With the view of preparing herself for the business of instruction, she acquired all the ordinary accomplishments of ladies, and much of the learning usually reserved for the stronger sex. At an early age she began to aid her elder sister, Catherine, in the management of a flourishing female school, which had been built up by the latter. When their father went west, the sisters accompanied him, and opened a similar establishment in Cincinnati.

For several years after her removal to this place, Harriet Beecher continued to teach in connexion with her sister. She did so until her marriage with the Rev. Calvin E. Stowe, professor of Biblical literature in the seminary of which her father was president. This gentleman was already one of the most distinguished ecclesiastical *savans* in America. Mrs. Stowe's married life has been of that equable and sober happiness so common in the families of Yankee clergymen. It has been blessed with a numerous offspring, of whom five are still living. She employed her leisure in contributing occasional pieces, tales, and novelettes, to the magazines and newspapers. Her writings were of a high moral tone, and deservedly popular.

The "peculiar institution" was destined to thwart the grand project in life of Mrs. Stowe's father and husband. When they relinquished their excellent positions in the east in order to build up the great Presbyterian seminary for the Ohio and Mississippi valley, they did so with every prospect of success. Never did a literary institution start under finer auspices. The number and reputation of the professors had drawn together several hundred students from all parts of the United States; not sickly cellar-plants of boys sent by wealthy parents, but hardy and intelligent young men, fired by the ambition of converting the world to Christ, were winning their way, to education and ministerial orders. An Abolition Convention met at Philadelphia, in 1835, and set on foot the agitation which has since convulsed the Union. The president of this Convention, Mr. Arthur Tappan, was one of the most liberal donors to Lane Seminary. He forwarded its address to the students; and a few weeks afterwards the whole subject was up for discussion amongst them. At first, there was little interest. But soon the fire began to burn. Many of the students had travelled or taught schools in the slave states; a goodly number were sons of slave-holders; and some were owners of slaves. They had seen slavery, and had facts to relate, many of which made the blood run chill with horror. Those spread out on the pages of Uncle Tom's Cabin, reader, and which your swelling heart and overflowing eyes would not let you read aloud, are cold in comparison. The discussion was soon ended, for all were of accord; but the meetings for the relation of facts were continued night after night, and week after week. What was at first sensibility, grew into enthusiasm; the feeble flame had become a conflagration. At first the discussion had been encouraged by the president and professors; but when they saw it swallowing up everything like regular study, they thought it high time to stop. It was too late; the current was too strong to be arrested. The commercial interests of Cincinnati took the alarm: manufacturers feared the loss of their southern trade. Public sentiment exacted the suppression of the discussion and excitement. Slave-holders came over from Kentucky and urged the mob on to violence. For several weeks there was imminent danger that Lane Seminary, and the houses of Dr. Beecher and Professor Stowe, would be burnt or pulled down by a drunken rabble. These must have been weeks of mortal anxiety for Harriet Beecher! The Board of Trustees now interfered, and allayed the excitement of the mob by forbidding all further discussion of slavery in the seminary. To this the students responded by withdrawing *en masse*. Where hundreds had been, there was left a mere handful. Lane Seminary was deserted. For seventeen years after this, Dr. Beecher and Professor Stowe remained there, endeavouring in vain to revive its prosperity. In 1850, they returned to the eastern states, the great project of their life defeated. After a short stay at Bowdoin College, Maine, Professor Stowe accepted an appointment to the chair of Biblical literature in the Theological Seminary at Andover, Massachusetts,—an institution which stands, to say the least, as high as any in the United States.

It is to this period Mrs. Stowe alludes, when she says, in the closing chapter of her book: "For many years of her life, the author avoided all reading upon or allusion to the subject of slavery, considering it as too painful to be inquired into, and one which advancing light and civilisation would live down." The terrible and dramatic scenes which occurred in Cincinnati, between 1835 and 1847, were calculated to increase the repugnance of a lady mingling actively in the *melée*. That city was the chief battle-ground of freedom and slavery. Every month there was some event to attract attention to the strife: either a press destroyed, or a house mobbed, or a free negro kidnapped, or a trial for freedom before the courts, or the confectionary of an English abolitionist riddled, or a public discussion, or an escape of slaves, or an armed attack on the negro quarter, or a negro school-house razed to the ground, or a slave in prison, and killing his wife and children to prevent their being sold to the south. The abolition press, established there in 1835, by James G. Birney, whom, on account of his mildness and firmness, Miss Martineau called "the gentleman of the abolition cause," and continued by Dr. Bailey, the moderate and able editor of the *National Era*, of Washington city, in which Uncle Tom's Cabin first appeared in weekly numbers, was destroyed five times. One of these mobs deserves particular notice, as its victims enlisted deeply the sympathies of Mrs. Stowe. In 1840, the slave-catchers, backed by the riff-raff of the population, and urged on by certain politicians and merchants, attacked the quarters in which the negroes reside. Some of the houses were battered down by cannon. From the brow of the hill on which she lived, Mrs. Stowe could hear the cries of the victims, the shouts of the mob, and the reports of the guns and cannon; and could see the flames of the conflagration. To more than one of the trembling fugitives she gave shelter, and wept bitter tears with them.

During her long residence on the frontier of the slave states, Mrs. Stowe made several visits into them. It was then, no doubt, she made the observations which have enabled her to paint noble, generous, and humane slave-holders, in the characters of Wilson, the manufacturer, Mrs. Shelby and her son George, St. Clare and his daughter Eva, the benevolent purchaser at the New Orleans auction sale, the mistress of Susan and Emmeline, and Symmes who helped Eliza and her boy up the river bank. Mrs. Stowe has observed slavery in every phase; she has seen masters and slaves at home, New Orleans markets, fugitives, free coloured people, pro-slavery politicians and priests, abolitionists and colonisationists. She and her family have suffered from it; seventeen years of her life have been clouded by it. For that long period she stifled the strongest emotions of her heart. No one but her intimate friends knew their strength. She has given them expression at last: Uncle Tom's Cabin is the agonising cry of feelings pent up for years in the heart of a true woman.

JOURNAL OF A POOR VICAR.

PART II.

After having written this letter I threw myself on my knees, while Polly was taking it to the post, and prayed to God that I might receive a favourable answer. After this I felt wonderfully calm. Oh, one word addressed to God is already grace received from him! I went out of my room with a light heart, though I had entered it so sad. Jenny was working near the window, looking so quiet and so innocent; the rays of light fell on her face and shone over the whole room, and I felt as if I was raised into heaven. I sat down at my desk, and wrote my sermon on the joys of the poor.

I preach in the church as much for my own benefit as for that of others. If no person leaves it feeling himself better, I at least profit by my own words. It is with a minister as with a doctor; he knows the force of the remedies he employs, but he does not always know what effect they will have upon the patient.

The same Day.—I received this morning a letter from a stranger who has passed the night at the inn, requesting me to come to him upon business of importance. I went immediately to see him. He was a fine young man, about twenty-six years of age, with a noble and interesting countenance. He wore an old surtout, boots covered with mud, and a hat, which probably cost more than mine, but is much more worn. In spite of his shabby dress, he has a dignified air—is no doubt a man of good family. His linen is very fine, but perhaps it is the gift of some benevolent person.

He drew me aside, and made a thousand excuses for having given me so much trouble, but finally confessed to me that he was in a very awkward position, but knowing no one at Crekelade, he had taken the liberty of addressing himself to the clergyman. He is, he says, an actor by profession, and at present without an engagement, and wanted to go to Manchester; but being unable to pay his reckoning at the inn, he besought me to lend him twelve shillings, promising faithfully to repay me as soon as he got employment. His name is John Fleetman.

There was more sadness in his face than in his words, and it appears he perceived a similar expression in mine, for raising his eyes towards me, he said with an anxious air, "Will you leave me then without aid?"

I told him the whole story of my own misery; I said to him that what he asked was "the fourth of all I possessed, and that I did not know whether I could keep my living much longer."

He then coldly said, "You answer an unfortunate man by describing your own misfortune. I ask nothing more of you; but is there no person at Crekelade, who, though not rich, has some spark of pity?"

I looked at him with some confusion, for I felt ashamed of having explained my own situation as an excuse for my refusal. At the same time I began to run over in my mind all the people in Crekelade whom I thought likely to serve him, but I could think of no one whom I might venture to recommend. Perhaps I was unjust towards my parishioners.

I turned round, and said to him, putting my hand upon his shoulder, "Mr. Fleetman, I feel for you very much, but I have explained to you my own position; I would wish to assist you if I could. Have a little patience; you shall have my answer in an hour."

On my way home I said, it is singular that the stranger should have addressed himself to me,—that a player should have thought of the clergyman. Truly there must be something which attracts the unfortunate towards me. If any one is in want, he comes first to me,—me, who have so little to give. I have remarked, also, that when I am dining anywhere from home, and there is a dog in the house, it is on my knee that he always lays his cold nose first in search of a morsel.

On coming in I told the children of my conversation with the stranger, and I asked Jenny for her advice how I ought to act, and she said, "I know what you think yourself, father, and there is no need for my opinion."

"And what is my thought?"

"You've said to yourself, I will do for this poor actor what I would wish God and Dr. Snart to do for me."

I had not thought this exactly, but I wished I had thought it.

I took the twelve shillings, and gave them to Jenny that she might carry them to the traveller. I don't like to hear the thanks of the poor; that makes me feel embarrassed, and ingratitude grieves me. Besides, I want to finish my sermon.

The Evening of the same Day.—The young player is certainly a fine fellow. When Jenny came back from the inn, she told us a long story about the landlady. This woman had told her that their guest hadn't a penny, and Jenny confessed to her that she had brought him some money. Hereupon, the landlady talked much upon the folly of giving, when one has nothing; of assisting vagabonds, when one is not able to maintain one's own children, and all that sort of thing.

I was still engaged in writing my sermon, when Mr. Fleetman came in. He did not like, he said, to leave Crekelade, without thanking his benefactor. Jenny was at this moment spreading the cloth on the table; we had an omelet and some radishes for supper, and I invited the stranger to sit down and share it with us, and he complied. He had need of it, for he had not eaten anything since morning. Polly went for some ale; it is a long time since we had so good a meal.

Mr. Fleetman seemed pleased with us. The sadness had disappeared from his face, and there remained that melancholy air which unfortunate men always wear. He supposed me to be less poor than I really am, in seeing the neatness and order of our dwelling, the clearness of the windows, the whiteness of the curtains, and the brilliant polish of the floor and furniture. In the dwellings of the poor the eyes are but too often offended by an appearance of dirt. But I have always recommended neatness to my wife and daughters, as one of the best methods of economising, and to this Jenny has attended with wonderful care. In this respect she has always surpassed her poor mother, and she is a perfect example to her sister. The smallest spot or stain does not escape her eye.

When supper was over, our guest was completely at his ease with us; nevertheless, he spoke less of his own position than of ours. The poor man must have some heavy weight resting on his heart; I do not like to suppose that it is upon his conscience. Often in the middle of our conversation his countenance becomes sad, and he in vain endeavours to put on an appearance of gaiety. May God aid him!

When he left us, I went a little way with him, and gave him some good advice, for I know these players are often men of very light behaviour. He solemnly promised to send me back the money I have lent him as soon as ever he can, and asked me several times how long I could live with what I had left.

His last words on taking leave of me were, "It is impossible for you to be unfortunate in this world. You have heaven in your heart, and two angels at your side." He meant Jenny and Polly.

Dec. 20.—This has been a quiet day, but by no means an agreeable one, for the grocer, Foster, has sent in his yearly account. This account is greater than we thought it was; although it tallies in every respect with the one we have kept ourselves, but he has raised the price of all the articles. The worst of this is, that I owe him some of last year's account, and he requires to be paid the whole, because, he says, he is in great need of money. The whole amounts to eighteen shillings.

I went to see him; he is a civil and obliging man. I had hoped to satisfy him with a small instalment, but he would not give way, and declared that if I did not pay he would have to resort to extreme measures, for he had a bill to meet in three days. "Credit before everything, for a business man," said he.

Seeing that all my entreaties were useless, I gave him all I owed him. Now I have only eleven shillings left. God grant

the plsyer may soon return me what I lent him; otherwise I do not know what we shall do.

Well, if thou dost not know this, oh, man of little faith, God knows it! Why is thine heart troubled? What evil hast thou done? Poverty is not a crime.

Dec. 24.—A little matter often brings great joy. We have been greatly pleased to-day in seeing Jenny's new dress. The dear girl looks like a bride in it. She doesn't wish to wear it, however, until she is going to church on New Year's Day.

Every evening she renders me an account of what she has spent in the support of the household for that day. But in future we must go to bed at seven o'clock, in order to spare coals and oil. My good daughters are not on this account any the less active during the day, and they chat in bed till midnight. We have a good store of turnips and cabbage, and Jenny hopes to be able to support us for six or eight weeks without getting into debt. This would be a master-stroke. In the interval it is likely Mr. Fleetman will keep his promise. When I appear to doubt it, Jenny seems vexed. She does not allow any one to speak bad of the player.

We often talk of him; my daughters particularly. His visit certainly broke in upon the uniformity of our life, and his name will often recur in our conversations. It's curious to see Jenny's anger whenever Polly says to her maliciously, "Pshaw, he's only a player!" Jenny then rehearses all sorts of stories of celebrated actors in London, who became rich and were admitted to the tables of dukes and marquises; and adds, that Fleetman ought to be one of the best actors that ever lived. "He has had great misfortunes to be sure," she says, "but his manners are refined, and his language choice."

"Yes, yes!" Polly then cried, "choice indeed; he called you an angel!"

"And you too," said Jenny.

"Yes, but I was only included to please father; it was you he was thinking of."

These childish pleasantries have given me food for reflection. Polly is growing up, and Jenny is already eighteen years of age. How shall I get either of them married? Jenny is a handsome girl, sensible, well-educated, and economical; but all Crekelade knows our poverty. Then, as we are not thought much of, it will be difficult for them to get a husband. In our days, an angel without money is not valued as much as a half-devil with a purse full of guineas.

The only advantage that Jenny derives from her fine face, is, that every one looks at her with pleasure. When she took to Foster, the grocer, the money we owed him, he made her a present of a pound of raisins and almonds, and said that he was sorry to be so hard with me, but that, if I continued to deal with him, he would give me credit until Easter. He never made me such a promise before. If I were to die, who would take care of my poor orphan children? Who? Their Father, who is in heaven.

Dec. 26.—Two very sad days. Never was Christmas so joyless for me. During these two days I have preached my two sermons five times in different churches. The roads between the villages were in a very bad state, the wind blew violently, and the cold was almost insupportable. The burden of old age is beginning to make itself felt. I am no longer as fresh or active as I was; but cabbage and turnips cooked by themselves, and a glass of water, is not the food to make a man strong.

I have dined these two days with Farmer Hurst. The country people are much more hospitable than those of our town, where for five or six months no one has ever thought of asking me to his house. Ah, if I had had my daughters with me! what abundance of everything there was! If they had only had for their Christmas dinner the remnants that were here thrown to the dogs!

I have been able, however, to bring them back some cakes, with which they are now regaling themselves while I am writing this. It was fortunate that I had the courage to say to the farmer and his wife, when they were pressing me to eat, "If you will allow me, I will take this morsel of cake to my daughters." The good people immediately filled a bag with them, and as it was raining in torrents, they sent their gig back with me to Crekelade.

What one eats and drinks is undoubtedly of very little importance, if one has enough to satisfy one's hunger and thirst. Nevertheless, a good dinner is an agreeable thing, and one feels fresher and livelier after it. The mind has need of being excited a little sometimes.

I am greatly fatigued. I have had some remarkable conversations with Farmer Hurst, and should like to write them down.

Dec. 27.—To-day we are joyful; but we must use our good fortune in moderation; this is a virtue I must teach my daughters, and this is why I have resolved not to open, until the afternoon, the packet that I have received from the worthy Mr. Fleetman. The girls are real daughters of Eve. They are devoured by curiosity to know what Mr. Fleetman has written. Now they read the address, now they feel the packet, and pass it from hand to hand.

But I am greatly troubled; I lent Mr. Fleetman only twelve shillings, and he has sent me back five pounds sterling. God be praised! He has without doubt got some good place.

How close joy follows upon grief. I called this morning at Alderman Fieldson's. I was told that Brook the carrier had attempted to commit suicide on account of his debts. He is a distant relative of my wife. About eleven years ago I became security for him for one hundred pounds, and I have never yet been freed from my bond. This man has met with a great deal of misfortune in these latter years, and is much given to drinking.

The alderman has quieted me. He told me that in truth there had been a great many bad reports upon this subject, but that it seemed to him most unlikely that Brook should commit suicide. I was going home somewhat easier in my mind, when I met Polly, who came running out to tell me that the parcel had arrived from Mr. Fleetman.

Evening of the same Day.—Our joy is changed into sorrow. The letter that we supposed was from Mr. Fleetman is from Dr. Snart. He tells me that I shall remain in my present situation only till Easter, and that then our accounts will be settled finally. He informs me, that he sends me money for my travelling expenses, so that from this moment I may be able to seek for another curacy; and he has directed the new vicar to relieve me of my duties at once, if I make no objection.

So the gossip of the townsfolk was not without foundation, and it may be true what they say also, that the new vicar would not have received his appointment so quickly if he had not consented to marry a near relative of Dr. Snart.

Jenny and Polly became pale as death, when, in place of Mr. Fleetman's thanks, they heard this frightful news. This, then, is my reward for so many years of service!

Polly cast herself, sobbing, into a chair, and Jenny ran up to her bedroom. My hands trembled in holding the rector's letter; I went back into my study, and fell on my knees and prayed. After that I rose up calmer, and opening my Bible, the first words upon which my eyes fell were these: "Fear not, for I have redeemed thee; I have called thee by thy name; thou art mine." (Is. xliii. 1). Then all fear fled from me, and I cried, "Yes, Lord, I am wholly thine!"

Not hearing Polly sobbing, I went back into the room. She was on her knees, her hands joined, and resting on the chair. I said nothing; I closed the door softly, and went back into my study, that I might not disturb that dear child.

A few minutes afterwards, having heard Jenny's voice, I went back to my two daughters. They were sitting at the window. I saw by the redness of Jenny's eyes that she had gone away in order to hide her grief from us. Both looked at me tremblingly. I think they feared to find a despairing expression on my face; but my calmness re-assured them. I began to hum an old air, and took the letter and the money, and placed them on my desk.*

The girls did not speak a word of what had happened the whole evening. I did not wish to remind them of it. This silence was due on their side to a feeling of tenderness, and on mine to the fear of showing any weakness before my children.

Dec. 28.—It is good to let the first burst of the tempest pass over without looking too closely upon its ravages.

* See Engraving, p 389.

We have passed a tranquil night.

We can now talk of Dr. Snart's letter and the loss of my employment as an old story. We have already formed a thousand plans for the future. But the worst of it is, that all our plans end in the necessity of being separated from one another for some time. In fact, for the present, I can do nothing better than try and place Jenny and Polly in some respectable house, while I am travelling in search of employment, and bread for myself and my children.

Polly has already regained her good humour. She has spoken again of her dream, and is amusing us about the bishop's mitre. To listen to her, you would think she was really counting upon some lucky accident.

As soon as the new vicar arrives at Crekelade I will deliver up to him the parish registers, and commence my wanderings in search of another parish. In the meantime I am going to write to some old friends at Salisbury and Westminster to know if they can procure employment for my daughters, alas! as cooks, dressmakers, or housemaids in respectable families. Jenny would be also a good governess for young children. I will not leave either one or the other at Crekelade; the people are not very kind, and they have all the faults belonging to little towns. They are already talking of nothing but the new vicar. Some appear sorry that I am leaving, but I am not sure that their regrets are sincere.

Dec. 29.—I have written to-day to the Lord Bishop of Salisbury, and I have given him a lively picture of my grievous position—the orphanage of my children—my long years of faithful service in the Lord's Vineyard. I believe he is a pious and humane man. May God incline him in my favour! There ought to be some little corner for me in the three or four churches of Salisbury.

Dec. 30.—If the bishop's mitre that Polly dreamed of does not come very soon, I shall go to prison. Yes, I see that the jail is inevitable. I have no more energy, and I am trying in vain to recover my old courage. I have not even strength to pray, so great is my distress.

Yes, the jail is inevitable. I say this over and over, in order to familiarise myself with the idea. May the Lord of mercy take pity upon my poor children. I am not able to tell them what I know.

Some Hours Later.—I am a little calmer. I wish to cast myself upon the arm of the Lord, and pray; but I was so ill! I have been lying on my bed, and I think I have slept; perhaps I have been also senseless. Three hours have passed thus. My daughters have swathed my feet; my body is prostrated, but my heart has received new strength. All that has happened seems like a dream. Brook has really hanged himself! Alderman Fieldson has called on me to tell me the news, and show me a declaration filed with my bond appended. He has good reason to pity me. One hundred pounds sterling! Where can I get such a sum. If we had sold all our moveables, they would scarce bring one hundred shillings!

Brook passed for a rich and steady man. I would never have suspected that he would end thus. My wife's fortune was spent during her long illness; I had even to sell some fields near Bradford which she had inherited. Now I am reduced to beggary. Ah, if I could only be a free beggar. But I must go to prison if Mr. Withell be not very generous.

Evening of the same Day.—I am ashamed of my weakness. To become so downcast and doubting! And yet I believe in Providence and am a servant of God!

I have done all that I can, and all that I ought to do. I have posted a letter to Mr. Withell. I have explained to him the impossibility of my fulfilling my engagement, and have told him that he was at liberty to send me to prison. If this man has any humane feeling, he will take pity on me; if not, I will go where he wishes. After coming back from the post-office, I put the courage of the children to the test. I wished to prepare them for the worst misfortune; but the young girls have proved stronger than the man, nobler, more Christian than the minister.

I told them of the death of Brook, the bond which I had signed, and the consequences which must result from it. They listened to me with sorrowful attention.

"To prison!" said Jenny, bursting into tears and clasping me in her arms, "Ah, my dear father, you who have nothing to reproach yourself with; why have you to suffer so much! But I will go to Trowbridge and cast myself at Mr. Withell's feet, and will not rise until I have obtained your release."

"No," cried Polly, "what use would that be? Merchants are merchants; they wouldn't give up one shilling of what they claim for all your tears. But I'll go to him and engage to serve him all my life, and engage to live on bread and water, till I have paid my father's debt by my labour."

While forming these projects, both became more calm, but they, nevertheless, very soon perceived the vanity of their hopes, and Jenny said,—

"What's the use of these schemes? Let us wait for Mr. Withell's answer. If he wishes to be cruel, why let him be so; God is in the prison also. And if you are condemned to go there, my dear father, perhaps you will be better there than here in our misery. No crime rests upon you; you have no shame to undergo. My sister and I will get places as servants, and we will provide for your wants with our wages. I would not even be ashamed to beg; it is a noble and holy thing to beg for one's father; we will go to see you often, and take great care of you. So let us not be afraid."

"You are right," replied Polly; "those who fear, do not believe in God. As for me, I'll be cheerful, as cheerful as I can be, when separated from you and my father."

These words raised my courage. Fleetman was right, when he said I had two angels at my side.

St. Sylvester's Day.—The year is at an end. I thank heaven, that, except one or two storms, it has been a good and happy one for me. Sometimes, it is true, we have seemed very poor, but we have always had wherewith to appease our hunger. Often have our hearts been troubled by bitter anxieties, but from these anxieties joys have sprung. Now I shall be hard set to have what will support us for the next six months. But how many people have not even so much, and know not how they will live on the morrow.

I have lost my place, verging on old age without employment and without food. Perhaps I must pass the next year in prison, far from my dear children; but as Jenny has said, God is in the prison also. To a pure conscience hell is not a hell; and to the soul of the wicked there is no happiness even in heaven. In truth I am happy. He who can bear up under privations is is rich. A good conscience is worth all the honours of the world.

My misfortunes have been a school which has enabled me to understand the Gospel. The Oxford divines comment upon the letter of the Holy Scriptures, but they do not penetrate the spirit. Nature is the best teacher of the Word of God.

With these reflections I conclude the year.

I am very glad that I have now for some time persevered in keeping this journal. Everybody should keep one; because one may learn more from himself than from the wisest books. When, by daily setting down our thoughts and feelings, we in a manner pourtray ourselves, we can see at the end of the year how many different faces we have. Man is not always like himself. He who says he knows himself, can answer for the truth of what he says only at the moment. Few know what they were yesterday; still fewer what they will be to-morrow.

A day-book is useful also, because it helps us to grow in faith in God and Providence. The whole history of the world does not teach us so much about these things as the thoughts, judgments, and feelings of a single individual for a twelvemonth.

I have also had this year new confirmation of the truth of the old saying, "Misfortunes seldom come singly; but the darkest hour is just before morning." When things go hard with me, then am I most at my ease; always excepting the first shock, for then I please myself with the prospect of the relief which is sure to succeed, and I smile because nothing can disturb me. On the other hand, when everything goes according to my wishes, I am timid and anxious, and cannot give myself up freely to joy: I distrust the continuance of my peace. Those are the hardest misfortunes which we allow to take us by surprise. It is likewise true that trouble looks more terrible in the distance than when it

is upon us. Clouds are never so black when near as they seem in the distance. When we grasp them, they are but vapours.

My misfortunes have taught me to consider, with amazing quickness, what will be their worst effect upon me; so I prepare myself for the worst, and it seldom comes.

Jan. 1, 1765.—This is a sad and sorrowful adventure at the beginning of the year. At six o'clock this morning, as I was meditating on my sermon in bed, I heard a knock at our door. Polly was already in the kitchen, and ran to see who it was.

"You see, father, Polly's dreams mean something after all. Here is your bishop's mitre." Then she went on to tell me of how this New Year's gift had come; but I was sorry she had not insisted upon knowing the name of our benefactor.

She then went out to light a candle and call Jenny, and in the meantime I dressed, and I confess, my curiosity was greatly excited. Heretofore the vicar of Crekelade had received but few and poor gifts. I suspected that it was my good friend the farmer, who appeared to have taken a fancy to me, who had sent me a



NEW YEAR'S-DAY.

Such early visits occur very rarely with us. Just as the day began to dawn, a man handed her in a large box, and said, "Mr. —— (Polly did not hear the name), sends this box to the vicar, and begs of him to take care of what it contains."

Polly took the box with surprise, and the messenger ran off. Polly then came and knocked gently at my door, and when I told her to come in, after wishing me a happy New Year, she added gaily—

box of the cakes which I so much admired, and I was pleased with his delicacy in sending it so early.

I went into the room. Polly and Jenny were already standing around the box, which was carefully fastened, and of an extraordinary size. I lifted it, and found it very heavy. But, strange, there were two or three round holes in the lid!

With Jenny's assistance I opened it carefully. A fine white cambric handkerchief covered the present. I raised it—and—no,

I cannot describe our astonishment. We cried with one voice, 'My God!"

A young infant, six or eight weeks old, was there sleeping in swaddling clothes, of the finest material, and surrounded by rosettes of ribbons. Its head was reposing upon a blue cloth cushion, and a handsome coverlid. This, as well as the braces, were ornamented with Brussels lace of great price. We remained some minutes looking at each other in silence. At last, Polly burst out laughing:—

"What shall we do? It's not the bishop's mitre!"

Jenny stroked the child's cheeks and said, in a soft voice, "Poor dear little creature! You have no longer a mother, or your mother dare not keep you with her. Great God! a being so sweet and innocent abandoned helplessly. Do you see, father? Look, Polly, how it reposes with an air of confidence, without suspecting its misfortune, as if it knew that it was in God's hands. Sleep, poor little destitute thing, sleep in peace. We will not cast you off. They have brought you to a house where you will be loved. I will be your mother."

While Jenny was speaking, the tears fell from her eyes. I clasped the dear excellent girl to my heart, and said—

'Yes, be its mother. The child whom fate has rejected belongs to those who are the victims of fate. God wishes, without doubt, to try our faith. No; he is not trying it—he knows it already. This is why this little being has been entrusted to us. We do not know, it is true, how we shall live to-morrow, but He knows it, who desires us to become the protectors of this infant."

Thus in an instant our resolution was formed. The child



THE DENOUEMENT.

continued to sleep. We, however, made all sorts of guesses as to who its parents could be, as we ought to know something of them, since the box was addressed to me.

Unfortunately she could tell us nothing of the bearer. I again commenced to meditate upon my sermon, in which I was about to speak of the power of Eternal Providence. My daughters remained talking of the care they would take of the little stranger.

It appeared to me, that on entering upon this year I was entering upon a world of wonders; and whether it was the effect of

superstition or not, I looked upon this child as an angel sent to protect me in my distress. I breathed more freely, and all my thoughts were calm and sweet.

Evening of the same Day.—My sacred work is finished, and I have returned home greatly fatigued. I had to walk for a long time over frightful roads, but on my return I was cheered by the gaiety of my daughters. The house had an air of cheerfulness such as I had not seen it wear for a long time. The cloth was already laid, and upon the table was a bottle of wine, the gift of an unknown friend.

What pleased me, above all, was to see the little infant smiling in Jenny's arms. Polly showed me our nursling's wardrobe—a dozen of superb dresses, and other articles of the finest material were in the box, and, more still, a small parcel of money, addressed to me, which was found lying at the child's feet. I opened the packet; it contained twenty guineas and the following letter:—

"Full of confidence in your piety and charity, unfortunate parents send you their beloved child. Do not forsake it. As soon as we can make ourselves known, we shall testify our gratitude. We shall know at a distance all that you do for our infant. The dear little creature is called Alfred, and is already baptised. We inclose the first quarter's payment fer his mainteuance. Every three months a similar sum will be punctually paid you. Take care of the child; we entrust it to the tender care of your amiable Jenny."

On hearing this letter read, Polly cried and jumped with joy. "This is our bishop's mitre! We are going to be rich! Farewell now to the poor vicarage! Nevertheless," she added, "upon thinking of it, I ought not to be so joyful. They might have spoken of the amiable Polly also."

We read and re-read the letter more than ten times, and we could scarcely believe our eyes in seeing all that gold upon our table. What a New Year's gift! I suddenly found myself relieved from all my anxieties as to the future, but by what an extraordinary occurrence! I thought over every one whom I knew whose birth and position could oblige them to conceal the existence of the child, and who are rich enough to pay so dearly for a work of Christian charity. But in vain. I could fix upon no one. But evidently the parents of Alfred knew both me and mine very well. The ways of Providence are wonderful.

Jan. 2.—Fortune is loading me with favours. This morning I received a letter by post, enclosing twelve pounds from Mr. Fleetman. This is too much; for a shilling he pays me a pound. His affairs must be in a flourishing condition, as he informs me. I greatly regret that he has forgotten to give me his address.

God grant that these riches may not make me too presumptuous. Now I hope to be able to pay Brook's debt, little by little. When I told my daughters that I had received a letter from Fleetman, this was a new source of joy. I do not understand why this young man should interest them so much. Jenny blushed, and Polly covered her face with her hands, whereat Jenny seemed greatly vexed.

I have read Mr. Fleetman's letter, not without embarrassment, for this young man is a flatterer. He praises me in a way that I do not deserve. He exaggerates everything, even when he extols Jenny. The poor girl's confusion while I was reading the letter pained me. I must quote one passage from it; it is very curious:—"Honoured Sir, when I left your house, it seemed to me as if I had quitted the abode of my father to enter upon a desert. I shall never forget you. No, never shall I forget the happiness that I have tasted while with you. I have you always before me, with your rich poverty, your Christian humility, and your patriarchal greatness of soul. And the charming Polly is there. For your Jenny I can find no expression good enough! What name can one give to those angelic beings whose presence casts a charm over everything around them? All my life I shall think of that happy moment when she brought me the twelve shillings, and addressed to me a few words of consolation. I have these twelve shillings still, and I would not give them for a thousand guineas. Very soon, perhaps, I shall be able to explain all to you. Never since I was born have I been at the same time so happy and yet so unfortunate as that at present. Give my best wishes to your excellent daughters, if they have not already quite forgotten me."

According to this letter it appears that Fleetman thinks of coming to Crekelade. I am glad to think so, as I could then testify my gratitude to him. Perhaps, through an excess of sensibility he has sent me all he had in return for my having lent him the half of what I had. If it were so, I would feel greatly grieved. He appeared a little light, but he has certainly a good heart.

Little Alfred smiled to-day at Polly, while Jenny, like a young mother, was carrying him in her arms. My daughters give themselves more care about the child than I had dared to hope: he is really a charming infant.

We have bought a nice little cradle, and all other things which he needs. The cradle is at the side of Jenny's bed, and she watches night and day like a guardian angel over her adopted child.

Jan. 3.—Mr. Blecking, the new vicar, arrived to-day at the inn, with his young wife, and sent me word. I went to see them soon after. He is an agreeable and polite man. He told me that he had been appointed my successor, and that he would wish to enter on his duties immediately if I had no objection; but that I could occupy the parsonage until Easter, and that he in the meantime would live at Alderman Fieldson's.

I replied that, if he pleased, I would resign my office to him immediately, as I should thus be more at liberty to look out for another situation. I desired only permission to preach a farewell sermon in the churches in which I had for so many years declared the word of the Lord.

With this he was quite satisfied, and said that he would come in the afternoon to examine the state of the parsonage.

He has been here with his wife and Alderman Fieldson. His lady was somewhat haughty, and appears to be of high birth, for there was nothing in the house that pleased her; and she hardly deigned to look at my daughters. When she saw the little Alfred in the cradle, she turned to Jenny, and asked whether she were already married. The good Jenny blushed up to her hair, and shook her little head by way of negative, and stammered out something. I had to come to the poor girl's assistance. The lady listened to my story with great interest, and drew up her mouth, and shrugged her shoulders. It was very disagreeable, but I said nothing. I invited them to take a cup of tea; but they declined. Mr. Curate appeared to be very obedient to the slightest hint of the lady.

We were very glad when this unpleasant visit was over.

Jan. 6.—Mr. Withell is an excellent man, to judge from his letter. He sympathises with me in regard to my unfortunate bond, and comforts me with the assurance that I must not disquiet myself if I am not able to pay it for ten years, or ever. He appears to be well acquainted with my circumstances, for he alludes to them very cautiously. He considers me an honest man; and that gratifies me most. He shall not find his confidence misplaced. I shall go to Trowbridge as soon as I can, and pay Mr. Withell Fleetman's £12 sterling, as an instalment of my monstrous debt.

Although Jenny insists that she sleeps soundly, that little Alfred is very quiet o' nights, and only wakes once, when she gives him a drink out of his little bottle; yet I feel anxious about the maiden. She is not so lively by far as formerly, although she seems to be much happier than when we were every day troubled about our daily bread. Sometimes she sits with her needle, lost in a reverie, dreaming with open eyes; or her hands, once so active, lie sunk upon her lap. When she is spoken to she starts, and has to bethink herself what was said. All this evidently comes from the interruption of her proper rest; but she will not hear a word of it. We cannot even persuade her to take a little nap in the day-time. She declares that she feels perfectly well.

I did not imagine that she had so much vanity. Fleetman's praises have not displeased her. She has asked me for his letter to read once more. And she has not yet returned it to me, but keeps it in her work-basket! Well, I cannot be angry. Her feelings are quite natural.

Jan. 8.—My farewell sermon was accompanied with the tears of most of my hearers. I see now at last that my parishioners love me. They have expressed their obligations on all hands,

and loaded me with gifts. I never before had such an abundance of provisions in the house, so many dainties of all kinds, and so much wine. A hundredth part of my present plenty would have made me account myself over-fortunate in past days. We are really swimming in plenty. But a goodly portion has already been disposed of. I know some poor families in Crekelade, and Jenny knows even more than I. The dear people share in our pleasures.

I was moved to the inmost by my sermon. With tears had I written it. It was a sketch of my whole past course from my call and settlement. I am driven from the vineyard as an unprofitable servant, and yet I have not laboured as a hireling. Many noble vines have I planted, many deadly weeds cut away. I am driven from the vineyard where I have watched, and taught, and warned, and comforted, and prayed. I have shrunk from no sick bed: I have strengthened the dying for the last conflict with holy hope; I have gone after sinners; I have not left the poor desolate; I have called back the lost to the way of life. Ah! all these souls that were knit to my soul are torn from me—why should not my heart bleed? But God's will be done!

Gladly would I now offer to take charge of the parish without salary, but my successor has the office. I have been used to poverty from my birth, and care has never forsaken me since I stepped out of my boy's shoes. I have enough for myself and daughters in little Alfred's board. We shall be able, indeed to lay up something. I would never again complain of wind and weather beating against my grey hairs, could I only continue to break the bread of life to my flock.

Well, be it so! I will not murmur. The tear which drops upon this page is no tear of discontent. I ask not for riches and good days, nor have I ever asked; but Lord! Lord! drive not thy servant for ever from thy service, although his powers are small. Let me again enter thy vineyard, and with thy blessing win souls.

Jan. 13.—My journey to Trowbridge has turned out beyond all expectation. I arrived late with weary feet at the pleasant little old city, and could not rouse myself from sleep until late the next morning. After I had put on my clean clothes (I had not been so finely dressed since my wedding-day—the good Jenny shows a daughter's care for her father), I left the inn and went to Mr. Withell's. He lives in a splendid great house.

He received me somewhat coldly at first; but when I mentioned my name, he led me into his little office. Here I thanked him for his great goodness and consideration, told him how I had happened to give the bond, and what hard fortunes had hitherto been mine. I then laid my £12 upon the table.

Mr. Withell looked at me for a while in silence, with a smile, and with some emotion. He then extended his hand, and shook mine, and said, "I know all about you. I have informed myself particularly about your circumstances, and I learn you are an honest man. Take your £12 back. I cannot find it in my heart to rob you of your New-Year's present. Rather let me add a pound to it, to remember me by.

Saying so, he arose, brought a paper from another room, opened it, and said, "You know this bond and your signature? I give it to you and your children." He tore the paper in two, and placed it in my hand.

I could not find words, I was so deeply moved. My eyes filled. He saw that I would thank him, but could not, and he said, "Hush! hush! not a syllable, I pray you. This is the only thanks I desire of you. I would have gladly have forgiven poor Brook the debt, had he only dealt frankly with me."

How generous! I do not know a more noble hearted man than Mr. Withell. He was too kind to me. Desiring me to relate my past history, he introduced me to his wife, and to the young gentleman his son. He had my little bundle, containing my old clothes, brought from the inn, and kept me at his house. The entertainment was princely. The chamber in which I slept, the carpet, the bed, were so splendid and costly, that I hardly dared to make use of them.

Next day Mr. Withell sent me home in his own elegant carriage. I parted with my benefactor with a heart deeply moved. My children wept with me for joy when I showed them the bond. "See," said I, "this light piece of paper was the heaviest burthen of my life, and now it is generously cancelled. I pray for the life and prosperity of our deliverer!"

Jan. 16.—Yesterday was the most remarkable day of my life. My daughters and I were sitting together in the forenoon; I was rocking the cradle. Polly was reading aloud, and Jenny was seated at the window with her needle, when she suddenly jumped up, and then fell back again deadly pale into her chair. We were of course all alarmed, and cried, "What is the matter?" Jenny, with a smile, said, "He is coming!"

The door now opened, and in came Mr. Fleetman in a beautiful travelling cloak. We greeted him right heartily, and were truly glad to see him so unexpectedly, and, as it appeared, in so much better circumstances than before. He embraced me, kissed Polly, and bowed to Jenny, who had not yet recovered from her agitation. Her pale looks, however, did not escape him. He inquired anxiously about her health. Polly replied to his questions, and he then kissed Jenny's hand, as though he would beg her pardon for having occasioned her such an alarm. But there was nothing to be said about it, for the poor girl coloured again like a newly-blown rose.

I called for refreshments, to treat my guest and benefactor better than on a former occasion; but he declined, as he could not remain long, and he had company at the inn. Yet, at Jenny's request, he sat down and took some wine with us.

As he had spoken of the company which had come with him, I supposed that it must be a company of comedians, and inquired whether they intended to stop and play in Crekelade, observing that the place was too poor. He laughed out, and replied, "Yes, we shall play a comedy, but altogether gratis." Polly was beside herself with joy, for she had long wanted to see a play. She told Jenny, who had gone for the cake and wine. Polly inquired if any actors had come along with him? "No," said he, "only a lady and gentleman, but excellent performers."

Jenny seemed more than usually serious, and, casting a sad look at Fleetman, inquired if he also should appear. This was asked in a tone peculiarly soft, yet very penetrating, which I have seldom observed in her, and only upon rare occasions, and at the most serious moments.

Poor Fleetman himself trembled at her tone, so like the voice of the angel of doom. He looked up to her with an earnest gaze, and appeared to struggle with himself for an answer, and then advancing towards her a step, he said emphatically, "Indeed, madam, you alone can decide that!"

Jenny dropped her eyes; he continued to speak; she answered. I could not comprehend what they were about. They spoke; Polly and I listened with the greatest attention, but we neither of us understood a word, or rather we heard words without any sense. And yet Fleetman and Jenny appeared not only to understand one another perfectly, but what struck me as very strange, Fleetman was deeply moved by Jenny's answers, although they expressed the veriest trifles. At last Fleetman clasped his hands passionately to his breast, raised his eyes, streaming with tears, to heaven, and with an impressive appearance of emotion, exclaimed, "Then am I indeed unhappy!"

Polly could hold out no longer. With a comical vivacity she looked from one to the other, and at last cried out, "I do believe that you two are beginning to act already!"

He pressed Polly's hand warmly, and said, "Ah! that it were so!"

I put an end to the confusion by pouring out the wine. We drank to the welfare of our friend. Fleetman turned to Jenny, and stammered out, "Miss, in earnest, my welfare?" She laid her hand upon her heart, cast down her eyes, and drank.

Fleetman immediately became more composed. He went to the cradle, looked at the child, and when Polly and I had told him its history, he said to Polly, with a smile, "Then you have not discovered that I sent you this New-Year's gift?"

The whole of us exclaimed in utter amazement, "Who, you?" Our guest then proceeded to relate what follows: "My name," said he, "is not Fleetman. I am Sir Cecil Fairford. My sister and myself have been kept out of our rightful property by my father's brother, who took advantage of certain ambiguous conditions in my father's will, and involved us in a long and entan-

gled lawsuit. We have hitherto lived with difficulty upon the little property left us by our mother, who died early. My sister has suffered most from the tyranny of her uncle, who was her guardian, and who had destined hor for the son of an intimate and powerful friend of his. My sister, on the contrary, was secretly engaged to the young Lord Sandom, whose father, then living, was opposed to their marriage. Without the knowledge either of my uncle or the old lord, they were privately married, and the little Alfred is their son. My sister, under the pretence of benefitting her health, and availing herself of sea-bathing, left the house of her guardian, and put herself under my protection. When the child was born, our great concern was to find a place for it where it would have the tenderest care. I accidentally heard a touching account of the poverty and humanity of the parish minister of Crekelade, and I came hither in disguise to satisfy myself. The manner in which I was treated by you decided me.

"I have forgotten to mention that my sister never returned to her guardian; for, about six months ago, I won the suit against him, and entered into possession of my patrimony. My uncle instituted a new suit against me for withdrawing my sister from his charge; but the old Lord Sandom died suddenly a few days ago of apoplexy, and my brother-in-law has made his marriage public; so that the suit falls to the ground, and all cause for keeping the child's birth secret is henceforth removed. Its parents have now come with me to take the child away, and I have come to take away you and your family, if the proposal I make you shall be accepted.

"During the lawsuit in which I have been engaged, the living which is in the gift of my family has remained unoccupied. I have at my disposal this situation, which yields over £200 per annum. You, sir, have lost your situation here: I shall not be happy unless you come and reside near me, and accept this living."

I cannot tell how much I was affected at these words. My eyes were blinded with tears of joy; I stretched out my hands to the man who came a messenger from heaven; I fell upon his breast; Polly threw her arms around him with a cry of delight. Jenny thankfully kissed the baronet's hand; but he snatched it from her in visible agitation, and hurriedly left us.

My happy children were still holding me in their embraces, and we were still mingling our tears and congratulations, when the baronet returned, bringing his brother-in-law, Lord Sandom, with his wife, who was an uncommonly beautiful young lady. Without saluting us, she ran to the cradle of her child. She knelt down over the little Alfred, kissed his cheeks, and wept freely with mingled pain and delight. Her husband raised her up, and had much trouble in composing her.

When she had recovered her composure, and apologised to us all for her behaviour, she thanked first me, and then Polly, in the most touching terms. Polly disowned all obligation, and pointed to Jenny, who had withdrawn to the window, and said, "My sister there has been its mother!"

Lady Sandom now approached Jenny, gazed at her long in silence, and with evidently delighted surprise, and then glanced at her brother with a smile, and folded Jenny in her arms. The dear Jenny, in her modesty, scarcely dared to look up. "I am your debtor," said my lady; "but the service you have rendered to a mother's heart it is impossible for me to repay. Become a sister to me, lovely Jenny; sisters can have no obligations between them." As they embraced each other, the baronet approached. "There stands my poor brother," said my lady; "as you are now my sister, he may stand nearer to your heart, dear Jenny; may he not?"

Jenny blushed and replied, "He is my father's benefactor."

"Will you not be," replied the lady, "the benefactress of my poor brother? I pray you look kindly on him. If you only knew how he loves you!"

The baronet took Jenny's hand and kissed it, and said, as she struggled to withdraw it, "Madam, will you be unkind to me? I cannot be happy without this hand." Jenny, much disturbed, let her hand remain in his. The baronet then led my daughter to me, and begged me for my blessing.

"Jenny," said I, "it depends upon thee. Do we dream? Canst thou love him? Do thou decide."

She then turned to the gentleman, who stood before her deeply agitated, and cast upon him a full penetrating look, and then took his hand in both hers, pressed it to her breast, looked up to heaven, and softly whispered, "God has decided."

Satisfied with the decision, I blessed my son and daughter, who embraced each other. There was a solemn silence, and all eyes were wet with a pleasing emotion.

Suddenly the lively Polly sprung up, laughing through her tears, and flinging herself on my neck, she cried, "There! now we have it! the New-Years gift—a gift better than a bishop's mitre."

The vivacity of Polly awoke little Alfred.

It is in vain for me to continue the description of what occurred during this happy day. I am continually interrupted; my happy heart, full to overflowing, is thankful to God for all his goodness.*

REMINISCENCES OF AN IRISH CANDIDATE.—RODERICK Mc FADDEN, ESQ.

PART II.—THE CANVASS.

Judging from this first day, my prospects seemed very bright. My friends were so ardent, that I began to hope my election would be carried not only triumphantly, but on the voluntary principle, and that I should be very little out of pocket. I issued a flourishing address to the electors with taking generalities and good claptraps, but nothing very definite in the way of pledges. I held meetings throughout the county, at all of which Presbyterians and Catholics vied in their zeal and activity. One respectable Presbyterian farmer took the chair at a meeting, and said that he would prefer a freeman's coffin to the degradation of voting for the late members. He would give a plumper for McFadden. So said they all; and my volunteer agents delighted me with the success of their mission — their victories over bailiffs, agents, and the whole host of the landlord forces. Everywhere I went, the whole population, men, women, and children, turned out to meet me, and a clear majority of the electors, perhaps three-fourths, promised to plump for me in the most emphatic manner. But I afterwards learned to my cost that their promises were given with a mental reservation—with a qualification which was *suppressed* lest it should damp the enthusiasm, and keep me from the poll, it was—"*if the landlords would let them.*" For to vote against their landlords, was a thing in their estimation as far removed from the practicable as a journey to the moon.

But the landlords had no notion of letting them. I could see that the hearts of the farmers were all with me—nearly to a man—and would unquestionably have voted for me, if let alone. The landlords, however, were united as one man against me, and when they learned that I was really going to the poll, and that the "fine respectable county," as they said, was likely to be "disgraced by the election of a total stranger and an adventurer"—they did set to work with tremendous earnestness. They immediately retained every respectable attorney in the county—they engaged all the cars at the posting establishments for the election days and a week previous—and all the influence of the agents, of the banks, of the county treasurer, of the road contractors, of the railway directors, loan fund managers, &c., was brought into operation upon the poor fellows who had promised me their support. The bailiffs were sent to order in arrears by a certain day, or else ———. Creditors poured in their accounts, demanding instant payments. Letters were read from absentee landlords and peers of the realm—in some cases, I believe, forged — requiring the tenants' votes for the late members. These gentlemen themselves drove *tandem* through the county—shaking hands with everybody—inquiring affectionately for everybody's wife and children—the education and

* The latter portion of the above narrative is part of a translation, published some years ago by Messrs. Chambers in their admirable "Miscellany of Useful and Entertaining Tracts." It may possibly have additional and renewed interest in the eyes of our readers, from being illustrated by the late gifted Tony Johannot.

prospects of the boys—whether anything could be done with each man's landlord as to abatement, arrears, &c.; all sorts of favours being hinted at in the most delicate manner. The landlords themselves—"though all unused to the melting mood," —were quite softened towards their tenants. They praised tenant right—promised to observe it most religiously, abused "the league" as the enemy of the tenants, as "a Popish engine," &c. It was too much for the poor serfs to see their masters fawning on them in this manner. Many of them gave way, and violated their pledges, which the landlords told them was their solemn duty. The chairman of one of my meetings, who preferred a freeman's coffin, accompanied a bailiff in his canvass against me, and there were other renegades equally remarkable. Many noble fellows, however, stood out manfully, in spite of threats and lures.

"How do you do, my dear Mr. Martin?" said my opponent to one of them, taking his hand eagerly; "how are Mrs. Martin and all the family?"

"Well, thank you," said the sturdy Presbyterian; "but I did not think you knew my name—and I wonder how you can be so anxious about my family."

"Why should I not, Mr. Martin?—I have long known your character as a most worthy man,—won't you give us your vote, Mr. Martin?"

"No, sir,—I mean to vote for Mr. Mc Fadden."

"Well, but you have a second vote."

"Well, if a second honest man stands with him, he shall have it; but I will give it to neither of you."

Had the Presbyterians kept their pledges, I should have been placed triumphantly at the head of the poll.

But a diabolical calumny, designed artfully to work on their Orange spirit and religious prejudices, and to divide them from the Roman Catholics, operated with astonishing success. It was reported everywhere that I had been sent over to contest the county by *Cardinal Wiseman*, and that my expenses would be paid out of the funds of the *Catholic Defence Association*. Then my prospects became clouded—alienation and desertion met me everywhere. My own judgment dictated that I ought to retire. My committee thought otherwise; and at their urgent request I agreed to poll the last man.

I found it a far more formidable task than I had anticipated to contest an Irish county. In some of the Leinster counties the people themselves did the work. The Roman Catholic members for Wexford, Meath, and New Ross, had nothing to pay but their own travelling expenses. Alas! it was very different in Ulster, as the present lightness of my purse testifies but too mournfully. The electors gave me cheers, promises, pledges, but they not only left me in a minority, but left me also to pay the piper. Yet, I feel myself to be a greater man for having so gallantly fought the battle of independence. The stupendous task before me required indomitable resolution and energy, as well as tact and perseverance. I had to attack a stronghold of agrarian domination, garrisoned by a race of hereditary nominees, and fortified by the power of the aristocracy, with the Established Church at its back, and the professions in its train. I unfurled the banner of freedom amidst a generation of serfs. Upon the hustings I had to encounter Irish landlordism (unlike any other landlordism in the world), with frowning face and wrathful eye, loud, menacing, and scornful in its language, surrounded by a host of officials, most of them rabidly bigotted, violently partial, passionately excited. The canvass had wrought up their passions to the highest pitch.

Up to the last few days my agents brought me the most cheering news. There was not a voice against me, they said, and I should have an overwhelming majority. But as the day of nomination approached, the struggle became terribly earnest, and the home of every voter became a scene of conflict. Never before did I understand the power of landlordism in Ireland. Whether the proprietors were absentees, or minors, or whether the estates were in Chancery, or in the hands of trustees, did not signify. On every property there was an *agent*, and the orders that issued from his office were as mighty as the ukases of the Russian emperor. But when one of the agents visited the farmers, smiling, shaking hands, promising—or, in case of resistance, threatening,—the effect was magical!—promises, pledges, consciences, patriotism, all withered and vanished at his approach.

One of my most active agents had often cheered me with accounts of a large district of comfortable farmers, wholly devoted to my cause, and resolved to support me to a man. He had them marshalled, he said, into a firm phalanx, and he defied the power of any agent to deter them from the discharge of their duty. A day or two before the election, he came to me with a very long face and doleful voice.

"Well, Mackey," said I, "how are you getting on? Do your men stand firm?"

"Oh, Mr. Mc Fadden," he answered with a groan, "I'm afraid we're ruined!"

"Why, what do you mean?"

"Oh, that Foxe!" was his only reply.

"What Foxe? Who, or what is Foxe?"

"Foxe!" he exclaimed; "don't you know him? Isn't he the agent? He has been among the voters, and they are all going to vote against you. He told them that you were no more fit to represent this great county than a child. That you had no property in the county, that you are an adventurer, wanting a place from government; that you would sell the seat for a berth in the colonies; that they might vote for you if they wished, he would coerce or intimidate no man, but he could befriend them better than Mc Fadden. If they had paid up their arrears of rent, or could pay up before the election, he was very glad; even if they had all paid up, it was no great thing to give the "compliment of their vote" to their landlord, by whom they had their living. But if they would not pay him that compliment, they must expect no compliment in return, no reduction, no forbearance, no "bog leave." They might vote for Mc Fadden, if they chose, but if they did he must mark their names in his book, which he held in his hand. He would be sorry to see any of them *marked men* on the estate, as he wished to befriend them, but every thing depended on themselves. The tenant-right agitators and clerical firebrands would not be there to help them in their time of need. Oh, that Foxe!" continued my crest-fallen agent, still bestridden with terror like a nightmare. "I argued with him manfully, but he turned upon me like a roaring lion, said he would hold me responsible for disturbing the county, and setting class against class, and bringing *Tipperaryism* into this peaceful neighbourhood. He told me I was an incendiary, —and my poor mother was frightened lest he would send me to jail as a ribbonman, for he is a magistrate as well as an agent, and a grand-juror, and a poor-law guardian, and I don't know what besides. I assure you, sir," added my valorous agent, "all the electors in my district would have stood by you like heroes only for that Foxe."

"That Foxe!" I exclaimed with indignation; "and the cowardly wretches, have they broken their pledges? Will they vote against their consciences, their principles, and the interests of their country? Will they not break the chains unholy that bind them to those petty tyrants, get their rights legalised, their property protected, and their liberty established" ——

"They would, sir," he interrupted, "only for that Foxe."

"I beg," said I, "you will not mention that name again in my hearing. You sicken me with such an account of the slavery of the people." He resumed—

"Well, sir; I won't mention his name—I mean Foxe—since you wish it; but I must tell you what more he said. He told the Presbyterians that you were a *Jesuit* in disguise, and that you were sent here by *Cardinal Wiseman*" ——

I could hear no more—"a Jesuit! Cardinal Wiseman! This is monstrous wickedness. That scoundrel shall answer for these base calumnies."

THE HUSTINGS.

The nomination day came. The people were all on my side, there was no question of that. If they had been left to their free will, my opponents would not have had more than one vote out of ten. They could not in the county town, for love or money, get anything in the shape of a *mob* to shout for them and hold up their hands. They were obliged to import this necessary commodity from a remote part of the county at half-a-

crown a-head, in addition to travelling expenses. The difficulty was to get these vagabonds into the court-house. It is true, the sheriff, sub-sheriff, court-house keeper, &c., were all partisans, and anxious to strain every point against me. Still appearances were to be saved. The "boys" were admitted into the court-house during the night before the nomination. But it was feared this would be known, and tell against them. They were accordingly turned out, but lodged somewhere in the back premises. A friend of mine happened to enter the court-house, with the high-sheriff, and a few of his friends, about an hour before the legal time for opening. He watched with curiosity and interest the movements of the officials. A number of *claqueurs* had already taken their places in each of the galleries, jury boxes, and other "strongholds." Policemen were placed to guard the passages, with orders to let in only "the right sort." The high sheriff came and reconnoitred, the sub-sheriff did the same. The presence of my friend, and one or two more, *not* of the right sort, seemed to create a difficulty. An official came in blustering, and pretended to clear the court. He was understood by the emissaries of the government candidates, and "they kept never minding him." Soon after, my friend heard great scolding in another part of the building. It was the sheriff cursing the court-keeper for allowing "strangers" to witness the preparations that were thus skilfully made. Then there was silence for some time; then a door leading through the judge's chambers opened, and in rushed a crowd of as great ragamuffins—as hideous-looking wretches—as ever shouted, even in an Irish mob. The inner doors were all opened for them, and, signalled by the police, they took their places on the seats allotted for them—seats which should have been reserved for the respectable freeholders. There they were protected by the police. These hirelings, with their bludgeons, filthy and ghastly after their night's debauch, presented a melancholy spectacle. Their entrance was accompanied by a most ludicrous circumstance. One of the bailiffs, with his big blue coat and red facings, made his appearance on the judge's bench just before they burst in, and said in a piteous tone:—"What 'll we do? here's a crowd of fellows has broke in on Jim, through the back doors!" "Where are you going there?" cried another bailiff. "Put them out!" cried a third. It was all *acting*, and such puny acting, that the few spectators burst into loud laughter, in which the bailiffs, the police, and "the boys" themselves, comfortably ensconced in their seats, in conscious security, were obliged to join. The preliminaries were now nearly complete; it only remained to conduct another portion of the hired mob, who stood round the outer door, to a gallery to which there was access only from the body of the court. At length the doors were thrown open, and this most difficult achievement was well accomplished by the constabulary. All the advantageous positions were now fully occupied by hired ruffians, each party having a fugleman, whose cries they were to repeat as loud and as long as their lungs permitted,—and well did the wretches earn the wages of iniquity. Yet it was impossible to avoid laughing, when, catching up some expressions used by the landlords, who mustered in great force, and themselves formed a violent mob,—these ragged creatures cried, "*We* grant tenant right!"—"*We* take no advantage of *our* tenants' improvements!"—"*We* deny that *our* rents are too high!"—"We are not guilty of intimidation—'Its false—Re-thract that!"—"We don't object to a fair settlement of the land question."—"Sharman Crawford is a humbug!"—"Down with the Tinant Lague!—Down with Mc Fadden!" &c. &c.

When I arrived with my committee and friends, I found every spot occupied but a little corner in the passage to the magistrate's box. The bench, the grand-jury's gallery, the petty-jury box, every prominent position was thronged by my opponents, who had most effectually packed the court, while my friends were standing behind the dock or in the outer hall. After some time, perceiving the trick, the electors made desperate efforts to get in; but they were encountered by the police, who thrust them back, using their batons freely on their heads and shoulders; and if any of my friends got into a prominent place where he might lead the cheers or groans, the police, in obedience to a hint from one of the opposing candidates, conveyed through the sheriff, immediately thrust him down. All would not do, however, the mass pressed in with resistless force, and in spite of the official management, the sheriff was obliged to declare that the show of hands was in my favour.

As the election began, so it was conducted throughout. On every hand the electors were waylaid by the landlords and agents, or their emissaries, who solicited, wheedled, worried, warned, threatened. Bankers, road contractors, tax collectors, creditors, all were in requisition, to prevent the electors from voting for the man who was pledged to advocate their own principles. The poor tenants were reminded of the visit of the bailiff, the sale of their goods and chattels—the expulsion of their families from their homes—the extirpation from the land reclaimed and purchased by their fathers! The landlords and agents sent cars for their serfs, and themselves came riding in at the head of every batch, never losing sight of them till they had recorded their votes against their consciences. Sometimes the people attempted to rescue these unwilling slaves, and succeeded in carrying a few of them to my committee rooms. I witnessed a scene of this kind which was very amusing. One of the agents appeared flourishing a whip, and moving backwards, and shouting, while a crowd, with overwhelming cheers, conducted a voter to my tally-rooms. In consequence of this, a body of Lancers was called out, under the orders of a stipendiary magistrate, and this formidable force conducted every landlord voter to the court-house door.

At the polling-booths, I am sorry to say, there was a great deal of partiality. More than three-fourths of the electors were Presbyterians and Roman Catholics. The sheriff, himself a zealous partisan of the landlords, had the appointment of his assessors and his deputies. Of these there were eleven—of whom eight were Episcopalians, and three Presbyterians, all notorious for strong anti-popular feelings and interests. Six of them were *land-agents*, and two of them baronial collectors. Well did they justify their selection, brow-beating and thwarting my agents on the one side, and aiding those of my opponents on the other. So far from being ashamed of their partiality, they were proud of it. My side of the court they kept clear of all friends who could render assistance, turning out and threatening to arrest some who tried to prevent fraud and personation. The other side they allowed to be constantly crowded with landlords, land-agents, and others, whose only business was the exercise of undue influence. One poor old man mistook my name, mentioning another like it in sound. My opponents held him to this, and raised an immense clamour. The deputy might have settled the matter by repeating the names of the three candidates, and asking for which he voted. But he would not. At length the assessor was called, and did so, when the vote was admitted. It were tedious, however, to dwell longer on all the foul influences used against me.

It is an interesting fact that they were nobly braved and defied by nearly half the electors of the county who recorded their votes on this occasion. More than 1,400 farmers heroically confronted the appalling power of maddened landlordism, and "plumped" for the man of their choice, giving me a majority of about 500 voters over each of my opponents, had they stood, like me, on separate and independent ground. But by their coalition they triumphed. To me, I confess, it was a thrilling sight to see those brave intelligent yeomen, conscious that they were emperilling all they held most dear, standing forward boldly, and with great determination voting against their landlords, while the basilisk eyes of agents and officials were sternly fixed upon them. When clergymen sacrifice their livings, and statesmen resign their places for conscience sake, fame sounds their praises, and their memory is blessed. But how few are there to celebrate the praises of the poor man, or to do his noble actions justice!

So I lost, and came back to lounge in my club, and wait for better times.

END OF VOLUME II.

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